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AQUATIC ECOSYSTEM INVENTORY

Macroinvertebrate Analysis

Annual Progress Report

MT. HOOD NATIONAL FOREST

B-t SPRAY PROJECT

1988



**Forest Service
Intermountain Region**

**AQUATIC ECOSYSTEM INVENTORY
Macroinvertebrate Analysis**

**MT. HOOD NATIONAL FOREST
1988**

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AQUATIC ECOSYSTEM ANALYSIS

FOR BADGER CREEK AND TYGH CREEK

ON THE MT. HOOD NATIONAL FOREST

B-t SPRAY PROJECT

1988

BACKGROUND AND METHODS

In recent years land managers on many of our forests and BLM districts in the west have improved the stability and reliability of land management plans and decisions by sampling aquatic organisms which act as natural monitors of management activities within the drainages on public lands.

During short-term exposure to water of poor quality or adverse changes in habitat, organisms that cannot tolerate the stress are destroyed and the aquatic macroinvertebrate community structure changes. Since aquatic organisms respond to their total environment, they can become an effective tool for detection of environmental changes.

Our analysis of aquatic ecosystems is based upon multiple factors including:

1. Various macroinvertebrate data - Community dry-weight biomass/sample expressed in gm/m²; number of individuals per taxa (resident populations?); DAT Diversity Index, which combines a measure of dominance and number of taxa; habit, habitat and feeding preferences of individual taxa or species; specific tolerances of taxa; community composition; and BCI (Biotic Condition Index), which indicates as a percentage how close an aquatic ecosystem is to its own potential.

2. Physical parameter data and

3. Water chemistry data

Effective use of the Biotic Condition Index (BCI) depends upon the availability of data on stream gradient, natural capability of instream substrate (may not be the composition present if man-influenced sedimentation is found at the sample

station), total alkalinity, and sulfate in mg/l.

Because of the way that macroinvertebrates occupy space within a stream, it generally takes at least three samples to represent the community accurately at a given station. One sample per station costs less but has little value for aquatic habitat assessment, one never knows if such single samples represent the best, the worst or an average of possible conditions at the sampling site. Also as a side benefit, three samples per station provides a basis for various statistical analyses, if random samples are all taken from a rubble substrate in as similar habitat as possible, taking into account mainly the velocity of flow and depth in the stream. Biologists have found that compared to other sampling devices, the Winget-modified surber net yields the highest coefficient of correlation (similarity of samples).

A stream's natural potential for productivity, habitat quality and water quality can be compared to the "actual" by taking quantitative samples of aquatic macroinvertebrates. Careful analysis of macroinvertebrate communities can reveal condition and trends in aquatic ecosystems. Sampling and analysis is conducted in accordance with procedures outlined in FSH R-4 2609.23, March 1985, Fisheries Habitat Surveys Handbook.

This report is based upon 180 aquatic macroinvertebrate samples along with water chemistry and physical habitat data provided by your aquatic specialists. Three stations were sampled on each of two streams to monitor the possible effects of a *Bacillus thuringiensis* (B-t) spray project for spruce budworm. A Control Station was established above the spray zone on both Badger Creek and Tygh Creek, with two experimental stations on each stream, one directly within the spray zone and one below the area to be sprayed.

Samples were taken from each of the stations the day before the spray project, the afternoon of the spray project, the day after the spray project, one week, one month and three months following the spray project, to monitor possible immediate and delayed effects on the aquatic macroinvertebrate communities. The last set of samples were taken in September after a three month recovery period.

SUMMARY

The macroinvertebrate data from Badger Creek samples indicate there may have been an initial impact, particularly upon the stoneflies in the community. By September there were indications that most of the possible impacts were temporary and not severe. Most of the species had been reestablished in the sampled stream reaches either from eggs deposited or from drift organisms. There were some differences in the community composition when experimental data were compared with those from the Control Station, but in most cases the pattern of occurrence was the same. Most of the species that disappeared after the B.t. application, reappeared by September. Their disappearance may have been due to the effects of the spray, emergence, sampling error or variability due to slight differences in habitat sampled.

On Tygh Creek the macroinvertebrate community at Station 3.3 did not show any abrupt adverse changes in community structure corresponding to the time of the spray project. There were some early changes in the community at Station 8.4 but they were not dramatic or sustained over time. Trophic group occurrence is shown in Tables 13 and 14 for Stations 3.3 and 8.4. In September the macroinvertebrate samples did not show some of the typical fall changes in the community structure, but few if any species appeared to be affected and most were present in September samples which indicated that if some species were affected initially or over time by the spray project, most were resilient enough to become reestablished within 3 months time.

In general, sampling appeared to be efficiently done on Badger Creek and Tygh Creek. If enough samples were taken the percent standard error of the mean on the computer printouts will be under 20. A numerical value under 50 for the coefficient of variation on the computer printouts indicates good sampling technique.

In some ways aquatic macroinvertebrate data are about as straight-forward and uncomplicated as any data one could use, and more reliable than most. For a given stream reach one can clearly determine from benthic samples if the water chemistry, habitat conditions or other environmental factors are limiting to organisms in particular niches or to the community in general.

In each of the streams monitored, good macroinvertebrate diversity was maintained. There were some subtle changes in community structure and composition that raised questions, but none indicated development of chronic problems. If there is concern about the few question marks that remain, another set of samples could be taken on these streams in early June of 1989.

BADGER CREEK

Three stations were sampled on Badger Creek. The stations were designated by the number of miles from the mouth and included Stations 6.2, 9.3 and 12.1. Station 12.1 was the Control Station located above the spray zone, Station 9.3 was directly within the spray zone, and Station 6.2 would be influenced by the spray but was located below the spray zone. Each of these Stations will be analyzed separately, then compared to observe community changes and their possible implications.

Compared with the community found before the spray project on June 7, the community sampled the same day of the spray project had fewer species at Station 6.2. The number of taxa was reduced from 46 to 39 and most of the change was within the stonefly and mayfly groups with four stonefly species and two mayfly species being lost. A community change was also reflected by other analysis elements including the Biotic Condition Index (BCI) value which was reduced from 91 on June 7 to 81 on June 8. The community standing crop was reduced from 3.1 to 2.7 and the DAT Diversity Index value from 17.7 to 13.9. The total number of organisms did not reflect a negative change.

On June 9, the day after the spray project, the number of taxa (42) was up to within four of the 46 found the day before the project. The BCI value of 82 remained about the same as found on the day of the spray as did the biomass at 2.9 g/m^2 and the DAT value was similar at 14.3. The total number of organisms/ m^2 was similar to that found on June 8.

One week after the spray project the number of taxa was back up to the number found on the June 7 prespray date. The BCI value of 81 still indicated a more tolerant community than was found on June 7. The standing crop was down to 2.0 g/m^2 but the DAT Diversity Index value was back up to 16.7, close to that found in the prespray samples. The number of organisms/ m^2 was lower than found on the prespray date.

On July 14, a month after the spray project, the number of taxa was 43 which was 3 less than found on the prespray date. The BCI value of 82 remained consistent with those found on sampling dates following the spray project. The biomass of 2.6 was close to that found in other post-spray samples. The DAT value of 13.7 was about that found just after the spray

project. The number of organisms/m² had climbed to near that found in the prespray community.

The 45 taxa found when sampled 3 months later, in September, was close to that found (46) on the prespray date, the BCI value of 83 was close to other post-spray values. The stream environment was believed, in part, to be in less than excellent range due to impacts from cattle grazing in the lower reaches and in the vicinity of Station 6.2. The macroinvertebrate standing crop of 3.2 was close to the 3.1 g/m² found in the prespray community on June 7. The DAT value of 19.6 indicated good diversity in the community. The number of organisms in the community was over 29,000/m². This high number was due in part to the abundance of sedimentation and organic enrichment tolerant taxa from grazing activities within the area.

On the September sampling date there were 13 stonefly taxa in the community which was six more than found in the prespray community. The percentage of trophic groups in the community on each of the sampling dates can be observed on Table 4.

At Station 6.2 the community composition appeared to be good and there appeared to be a good balance among the trophic groups on most of the sampling dates. There was a drop in the number of predators which is mainly due to the reduction of stoneflies in the community on the June 8 sampling date. This percentage was also low on the July 14 sampling date.

On September 19 there was a higher percentage of scrapers in the community, due primarily to the abundance of organic nutrients in the system which would increase the diatoms and the algae that are scraped from the rocks by these species. Ordinarily one would expect to get an increase in the number of shredders in the community in the Fall. This did not occur, in fact there was a decrease in the number of shredders in September at Station 6.2 when they were represented by only 5% of the community. This may be due to impacts on the riparian habitat by the grazing activities within the vicinity of this station.

In Table 7 one can observe the occurrence of various taxa found at Station 6.2 on each of the dates the community was sampled. Some of these species disappeared after the spray project. The following will be a discussion on the possible implications of these species disappearing from the benthic samples for a period of time.

Eight of the mayfly species were missing from the community when sampled during various times of the sampling period. *Rhithrogena* was missing from the samples after June 8 but reappeared September 19. The adult emergence of this species is during spring and summer so it's absence could possibly be due to emergence during which time it would not be found in the community. This mayfly did reappear September 19 and thus was not eliminated from the community by the spray project. Some of the mayfly species were found on each of the sampling dates and did not indicate any impacts from the spray project. These included *Epeorus*, *Cinygmulia*, *Ephemerella inermis* and *Baetis*.

One of the most sensitive of the mayfly species, *Ephemerella doddsi*, was found periodically through the sampling period and was found in the September samples. *Ephemerella spinifera* was missing from the samples after the spray project. This species is known to emerge in summer months and the same pattern of occurrence was observed at the Control Station, 12.1. *Ephemerella coloradensis* disappeared after the June 15 sampling date. It is known to emerge in the summer and fall and it also had the same pattern at the Control Station. *Ephemerella gibialis* was found on all but the last sampling date, it has a summer emergence pattern and it also had a similar pattern at the Control Station. *Ephemerella delantala* was found on the first three dates in June but was missing thereafter and did not reappear. *Ephemerella teresa*, which has a summer emergence, was found on the June sampling dates but was missing in July and September. *Tricorythodes minutus* was found on June 8 and then was missing on the rest of the June and July sampling dates but reappeared in September samples, so it was not eliminated from the community.

There were eight stonefly taxa that appear to have possible effects from the spray project. Of these *Megarcys*, which emerges in spring and summer, was found only in the June 7 samples and did not reappear in September, thus may be a species affected by the spray project. The stonefly *Zapada* was missing from the community only on June 8 and September 19. Emergence time for this species varies and may be during winter, spring or summer. *Malenka*, which emerges quarterly was found only on the June 7 sampling date and not in samples thereafter. It did not appear on September 19 and thus may be another species affected by the spray project. Species in the family Capniidae were found only in the September samples. This was the same pattern observed at the Control Station 12.1. The large stonefly *Hesperoperla pacifica* was missing from the June 8 and 9 samples and July 14, but was found in the June 15 and

September 19 samples. The effects on this species may have just been temporary. The emergence time is spring and summer for this species but it did appear in September samples and thus was not eliminated by the spray project. Another of the large stoneflies Caleineura, was found only on the June 9 sampling date, which was the same pattern observed at the Control Station (12.1). Pteronarcella badia was missing from the community after June 7, but it did reappear by September 19, thus it was not eliminated from the community entirely.

There were 8 taxa in the order Tricoptera that may have been affected by the spray project. Some trichopteran species that did not appear to be affected were Hydropsyche, Cheumatopsyche, Glossosoma and Rhyacophila which were found on each of the sampling dates. Alisotrichia was found only on the September sampling date, but the same pattern was observed at the Control Station. Argyropsyche was found in the June 7 and 15 samples but in none of the other samples. It has a spring and summer emergence period but may have been affected by the spray project. One of the Limnephilid caddisflies Dicosmoecus was found only on June 7 and July 14. It has a spring and summer emergence period. It did not reappear in September.

Another of the caddisflies, Neophylax was found in June, not on the July or September sampling dates. It has a spring emergence pattern. Micrasema was found during the same period of time but was missing on the last two sample dates. Its emergence time is spring and summer. Another of the Limnephilids Hesperophylax, was found June 15 and July 14 and at the Control Station it was found only on July 14. Agraylea was found only on July 14 and this was the same pattern found at the Control Station.

Most of the dipterans found in the community were present consistently throughout the period of time sampled, however, Maruina was missing for the last three sample dates and did not reappear in September, nor did it reappear on that date at the Control Station.

The clams, Pelecypods, were found at Station 6.2 June 7, 9 and 15. These species were only found on June 15 at the Control Station. It appears although there may be some possibility of some initial impact from the spray project, in nearly all cases, the species missing following the spray reappeared by September indicating they were not eliminated from the community.

The number of taxa at Station 9.3 was reduced gradually following the spray project on June 7. In the prespray community there were 44 taxa. This was reduced to just 41 on June 8 and 39 on June 9. By June 15 the number of taxa was down to 34, so there may have been a delayed effect on this community which ordinarily would be expected with the type of spray project that was carried out. By July 14, however, the number of taxa was back up to 42, which was close to the 44 found in the prespray community. Finally, in September the number of taxa was 39.

In June 7 samples there were 5 stonefly taxa, on June 8 there were 6 and by June 9 this number was down to 3. On June 15 there were 5 stonefly species, July 14 there were 8 and by September 9 there were 10 stonefly taxa in the community at Station 9.3. Other insect orders appeared to remain rather stable in the community. A more tolerant community was found at Station 9.3 on the June 8 sampling date than was found in the prespray community.

The BCI value on June 7 was 89, and June 8 was 78 indicating a more tolerant community on that sampling date. By June 9 however it was 83 and on June 14 the BCI was 88, almost that (89) found on the prespray period. By July 14 the BCI value of 89 was the same as found on June 7. In September the BCI value was 85 which indicated good conditions at this station.

The macroinvertebrate standing crop took a drop after the spray project. It went from 2.3 g/m^2 June 7 to 1.4 g/m^2 June 8 and by June 9 it was down to 0.7 g/m^2 . On June 15 the biomass climbed to 1.3, June 14 to 3.6 and September 19 back to 1.8 g/m^2 . The diversity in the community remained about the same. The DAT value did not vary much, it was 16.2 June 7 and 15.9 on the 8th and 15.3 on the 9th. It dropped into the 14 range by mid June and mid July then back up to 15.6 by September. Diversity in the community did not change dramatically nor did the number of organisms/ m^2 reflect changes in the community structure, as indicated on the data sheet.

The DAT Diversity Index values were near excellent for most of the sampling dates and varied slightly. Also typical of upper stream reaches, the number of organisms/ m^2 was just over 5,000 on the June 7 sampling date and did not change much on other June samling dates. Community numbers were elevated by July and September sampling dates and corresponded fairly closely with those at the other stations sampled.

Table 8 shows the occurrence of the macroinvertebrate taxa on each of the sampling dates at Station 9.3, which was within the spray zone on Badger Creek. There were six mayfly taxa that may have been affected by the spray project. *Ephemerella spinifera* was found only on the last two sampling dates. *Ephemerella galloplana* was missing on the last two sampling dates, but has a summer and fall emergence pattern. *Ephemerella delalandia* was found only in the June 8 and July 14 sampling dates but that was the same pattern found at the Control Station. *Ephemerella heterogynata* and *Ephemerella gressitti* were found only on the June 7 sampling date before the spray project and did not reappear by September. Both of these species may have been affected by the spray project. *Tricorythodes* was found only on the September 9 sampling date and thus was not eliminated by the spray project.

Three of the stoneflies were possible candidates for being affected by the spray project. *Megarcys* was found only on the July 14 sampling date and has a spring and summer emergence period, but it did not reappear by September 9. The large stonefly *Galeatus* was missing from the community after June 8 but did reappear by September 9. It has a spring, summer emergence period. *Pteronarcys badia* was found only July 14, it also has a spring, summer emergence period.

Of the caddisflies, *Hydropsyche* was missing only July 14 but reappeared by September 9. *Oligophliboides* was found only on the June 7 sampling date and was missing thereafter and did not reappear by September. *Glossosoma* which was found on each of the post-spray sampling dates at Station 6.2, was missing from the community June 9, 15 and September 9 at Station 9.3.

In the order diptera *Margina* was missing after June 15. It has a summer emergence period. *Perigomma* was found on the June 7 sampling date but reappeared by September. It has a spring, summer emergence period.

Of the miscellaneous macroinvertebrates present at Station 9.3, the clams, Pelecypods, were found June 7 and 8 but not found thereafter. This indicates it may have been affected by the spray project. Planaria was found on the June samling dates but not thereafter and may also have been affected by the spray project. The Ostracods, Oligochaetes and Water Mites (Acarina) did not appear to be affected and were present on each of the sampling dates.

Table 5 shows that on each of the sampling dates the trophic groups at Station 9.3 had a good balance with the exception on shredders on the September date. Ordinarily the shredders would increase in numbers in proportion to other species in the fall, but this did not happen. These are primarily stonefly species. Although it does not appear to be critical, the spray project may have had some influence upon the stonefly group.

At the Control Station 12.1, the number of taxa remained fairly static. It ranged from 39 on the June 15 sampling date to 42 on the June 7 sampling date. The BCI values indicated good conditions at this station with small fluctuations ranging from 82 on the June 7 sampling to 85 on the September sampling date, with a BCI of 86 on June 8. The macroinvertebrate biomass was lower than found at the lower stations which is often the case. The biomass was higher on June 8 than on June 7. On June 9 it was back to about the same as found on June 7, 1.0 g/m², about what one would expect in a stream with 30 mg/l alkalinity. Good biomass readings, over 2.0 g/m², were found on the July and September sampling dates.

At the Control Station (12.1) clean water species indicated good water quality on each of the sampling dates with some indications of slight amount of sedimentation and organic enrichment, particularly on the July and September sampling dates. The observed number of shredders in the community on the July and September sampling dates is generally found where riparian habitat is in good condition. Clean water species indicated good water quality and some good instream substrate in this reach of stream.

Table 9 indicates the occurrence of the macroinvertebrate taxa at the Badger Creek Control Station 12.1 for comparison with the experimental stations. Table 6 indicates the percentage of the trophic groups at Station 12.1 on each of the dates sampled. It may be observed that the shredders made up a higher percentage of the community in September than it did in other months at the control station. This would be expected because their numbers should increase during the fall months. This was not observed at the other two stations. Other trophic groups at the experimental stations compared favorably with those found at the control station.

USFS - INTERMOUNTAIN REGION - ANNUAL PROGRESS REPORT

MACROINVERTEBRATE ANALYSIS

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B.

| <u>Organism/m²</u> | <u>Station</u> | <u>Date(s)</u> | <u>Diversity Index</u> <u>DAT (mean)</u> | <u>Standing Crop</u> <u>g/m² (mean)</u> | <u>Biotic Condition Index</u> <u>BCI 50</u> | <u># Taxa</u> |
|-------------------------------|----------------|----------------|---|---|--|---------------|
| 18,740 | 6.2 | 6-07-88 | 17.7 | 3.1 | 91 | 46 |
| 13,717 | 9.3 | 6-07-88 | 16.2 | 2.3 | 89 | 44 |
| 5,219 | 12.1 | 6-07-88 | 16.9 | 0.6 | 82 | 42 |
| 23,747 | 6.2 | 6-08-88 | 13.9 | 2.7 | 81 | 39 |
| 11,782 | 9.3 | 6-08-88 | 15.9 | 1.4 | 78 | 41 |
| 8,522 | 12.1 | 6-08-88 | 18.4 | 1.3 | 86 | 43 |
| 22,357 | 6.2 | 6-09-88 | 14.3 | 2.9 | 82 | 42 |
| 10,874 | 9.3 | 6-09-88 | 15.3 | 0.7 | 83 | 39 |
| 4,980 | 12.1 | 6-09-88 | 17.2 | 0.5 | 83 | 40 |
| 13,112 | 6.2 | 6-15-88 | 16.7 | 2.0 | 81 | 46 |
| 14,117 | 9.3 | 6-15-88 | 14.5 | 1.3 | 88 | 34 |
| 7,706 | 12.1 | 6-15-88 | 17.2 | 1.0 | 82 | 39 |
| 17,887 | 6.2 | 6-14-88 | 13.7 | 2.6 | 82 | 43 |
| 24,374 | 9.3 | 6-14-88 | 14.8 | 3.6 | 89 | 42 |
| 24,055 | 12.1 | 6-14-88 | 15.6 | 2.2 | 82 | 41 |
| 29,517 | 6.2 | 6-19-88 | 19.6 | 3.2 | 83 | 45 |
| 18,912 | 9.3 | 6-19-88 | 15.6 | 1.8 | 85 | 39 |
| 15,748 | 12.1 | 6-19-88 | 17.6 | 2.8 | 85 | 41 |
| <u>Scale:</u> | | <u>DAT</u> | <u>Standing crop</u> | | <u>BCI</u> | |
| Excellent | | 18 - 26 | 4.0 - 12.0 | | above 90 | |
| Good | | 11 - 17 | 1.6 - 4.0 | | 80 - 90 | |
| Fair | | 6 - 10 | 0.6 - 1.5 | | 72 - 79 | |
| Poor | | 0 - 5 | 0.0 - 0.5 | | below 72 | |

TABLE 1. MT. HOOD NATIONAL FOREST--BADGER CREEK STATION 6.2
 ECOLOGICAL ASSOCIATIONS LIST FOR ALL OF THE TAXA FOUND IN SAMPLES
 TAKEN JUNE 7,8,9,15, JULY 14 AND SEPTEMBER 19, 1988.

| Taxa | Habitat ^a | Habit ^b | Trophic Relationship ^c |
|---------------------------------|----------------------|--------------------|-----------------------------------|
| Ephemeroptera | | | |
| <i>Epeorus</i> sp. | 1 | 1 | 1,2,3 |
| <i>Cinygmulia</i> sp. | 1,2 | 1 | 1,2,3 det,dia |
| <i>Heptagenia</i> sp. | 1,2 | 1 | 1,2,3,6 |
| <i>Rhithrogena</i> sp. | 1 | 1 | 1,2,3 det,dia |
| <i>Ephemerella inermis</i> | 1,2 | 1 | 1,2 det,dia |
| <i>Ephemerella doddsi</i> | 1 | 1,2,4 | 1,2,3,6 det,dia |
| <i>Ephemerella spinifera</i> | 1 | 1,2,4 | 1,2,6 |
| <i>Ephemerella coloradensis</i> | 1,2 | 1 | 1,2,3 det,dia |
| <i>Ephemerella tibialis</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella delantala</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella teresa</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella hecuba</i> | 2 | 1,2,5 | 1,2 |
| <i>Paraleptophlebia</i> sp. | 1,2 | 1,2,4 | 1,2,5 det,dia |
| <i>Tricorythodes minutus</i> | 2 | 1,2 | 1,2 |
| <i>Ameletus</i> sp. | 1,2 | 1,4 | 1,2 det,dia |
| <i>Baetis</i> sp. | 1,2 | 1,3,4 | 1,2,3 det,dia |
| Plecoptera | | | |
| <i>Chloroperlidae</i> | 1 | 1 | 1,2,3,6 |
| <i>Skwala parallela</i> | 1 | 1 | 6 |
| <i>Megarcys</i> | 1 | 1 | 6 |
| <i>Cultus</i> sp. | 1 | 1 | 6 |
| <i>Taenionema</i> sp. | 1,2 | 1,2 | 3 |
| <i>Isoperla</i> sp. | 1,2 | 1,2 | 1,2,6 chi,eph |
| <i>Isogenoides</i> | 1 | 1 | 3,6 |
| <i>Zapada</i> sp. | 1 | 1,2 | 5 det |
| <i>Malenka</i> | 1,2 | 1,2 | 5 det |
| <i>Capniidae</i> | 1,2 | 1,2 | 5 det |
| <i>Leuctridae</i> | 1,2 | 1,2 | 5 det |
| <i>Amphinemura</i> | 1,2 | 1,2 | 1,2,5 det |
| <i>Podmosta</i> sp. | 1,2 | 1,2 | 3,5 det |
| <i>Perlidae</i> | 1 | 1 | 6 |
| <i>Perlodidae</i> | 1 | 1 | 6 |
| <i>Perlinodes</i> | 1 | 1 | 6 |
| <i>Hesperoperla pacifica</i> | 1 | 1 | 6 |
| <i>Glaassenia sabulosa</i> | 1 | 1 | 6 |
| <i>Galineuria</i> | 1 | 1 | 6 |
| <i>Pteronarcella badia</i> | 1,2 | 1,2 | 3,5,6 det |
| Trichoptera (add) | | | |
| <i>Hydropsyche</i> sp. | 1,2 | 1,6 | 1,4 det,ani |
| <i>Cheumatopsyche</i> sp. | 1,2 | 1,6 | 1,4 det,ani |
| <i>Alisotrichia</i> | 1 | 1 | 1,2,3 |

TABLE 1 - Continued

| | | | |
|---|---|--|--|
| <u>Arctopsyche</u> sp. | 1 | 1,6 | 1,4 |
| <u>Dicosmoecus</u> | 1 | 2 | 3,5,6 det |
| <u>Neophylax</u> | 1,2 | 1,2 | 5 |
| <u>Micrasema</u> sp. | 1 | 2,8 | 1,2,5 |
| <u>Amiocentrus</u> | 1 | 1,3 | 1,2 |
| <u>Glossosoma</u> sp. | 1 | 1,8 | 3 dia |
| <u>Rhyacophila</u> sp. | 1 | 1 | 1,2,6 |
| <u>Ecclysomia</u> | 2 | 2 | 5 |
| <u>Limnephilidae</u> | 1,2 | 1,2,3 | 1,2,3,5 |
| <u>Hesperophylax</u> | 1,2 | 2 | 5,3,1,2 det |
| <u>Manophylax</u> | 1 | 1 | 3 |
| <u>Philopotamidae</u> | 1 | 1 | 1,4 |
| <u>Hydroptila</u> | 1,2 | 1 | 3,7 |
| <u>Goera</u> | 1 | 1 | 3 |
| <u>Agraylea</u> | 1 | 1 | 7,1,2 |
| Coleoptera | | | |
| <u>Elmidae</u> | 1 | 1,3 | 1,2,3 |
| <u>Dytiscidae</u> | 1,2 | 3,4 | 7 |
| Diptera | | | |
| <u>Antocha monticola</u> | 1 | 1,7 | 1,2 |
| <u>Hexatoma</u> sp. | 1,2 | 1,2,5 | 6 |
| <u>Dixanota</u> | 1,2 | 2,5 | 1,5,6 |
| <u>Glutops rossi</u> | 2 | 2,5 | 7 |
| <u>Simuliidae</u> | 1 | 1 | 1,4 |
| <u>Chironomidae</u> | 1,2 | 2,5,7 | 1,2,4,6,7 |
| <u>Empididae</u> | 1,2 | 2,5 | 1,2,6 |
| <u>Ceratopogonidae</u> | 2 | 2,5 | 1,2 |
| <u>Atherix</u> | 1,2 | 3,4 | 1,2 |
| <u>Tabanidae</u> | 2 | 5 | 6 |
| <u>Maruina</u> | 2 | 5 | 1,2 |
| Odonata | 2 | 1,3 | 6 |
| <u>Gomphidae</u> | 2 | 5 | 6 |
| <u>Ophiogomphus</u> | 1,2 | 5 | 6 |
| <u>Coenagrionidae</u> | 1,2 | 3 | 6 |
| Ostracoda | 2 | 8 | 4 |
| <u>Pelecypoda</u> | 2 | 5 | 4 |
| <u>Oligochaeta</u> | 2 | 2,5 | 1,2 |
| <u>Hydracarina</u> | 1,2 | 1 | 7,8 |
| <u>Nematoda</u> | 1,2 | 1,2,5 | 1 det |
| <u>Copepoda</u> | 2-lentic | 3,4 | 1,3,4 det,ani |
| a. 1=lotic, erosional 2=lotic depositional | b. 1=clingers 2=sprawlers 3=climbers 4=swimmers 5=burrowers 6=net spinners 7=tube makers 8=case makers | c. 1=collectors 2=gatherers 3=scrapers 4=filterers 5=shredders 6=engulfers 7=piercers 8=parasitic | det=detritus dia=diatoms chi=Chironomidae eph=Ephemeroptera ani=animal |

TABLE 2. MT. HOOD NATIONAL FOREST--BADGER CREEK STATION 9.3
 ECOLOGICAL ASSOCIATIONS LIST FOR ALL OF THE TAXA FOUND IN SAMPLES
 TAKEN JUNE 7,8,9,15, JULY 14 AND SEPTEMBER 19, 1988

| Taxa | Habitat ^a | Habit ^b | Trophic Relationship ^c |
|----------------------------------|----------------------|--------------------|-----------------------------------|
| Ephemeroptera | | | |
| <i>Epeorus</i> sp. | 1 | 1 | 1,2,3 |
| <i>Cinygmulia</i> sp. | 1,2 | 1 | 1,2,3 det,dia |
| <i>Rhithrogena</i> sp. | 1 | 1 | 1,2,3 det,dia |
| <i>Heptagenia</i> sp. | 1,2 | 1 | 1,2,3,6 |
| <i>Ephemerella inermis</i> | 1,2 | 1 | 1,2 det,dia |
| <i>Ephemerella doddsi</i> | 1 | 1,2,4 | 1,2,3,6 det,dia |
| <i>Ephemerella spinifera</i> | 1 | 1,2,4 | 1,2,6 |
| <i>Ephemerella coloradensis</i> | 1,2 | 1 | 1,2,3 det,dia |
| <i>Ephemerella tibialis</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella delantala</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella teresa</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella hecuba</i> | 2 | 1,2,5 | 1,2 |
| <i>Ephemerella heterocaudata</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella orestes</i> | 1 | 1 | 1,2,3 |
| <i>Paraleptophlebia</i> sp. | 1,2 | 1,2,4 | 1,2,5 det,dia |
| <i>Tricorythodes minutus</i> | 2 | 1,2 | 1,2 |
| <i>Ameletus</i> sp. | 1,2 | 1,4 | 1,2 det,dia |
| <i>Baetis</i> sp. | 1,2 | 1,3,4 | 1,2,3 det,dia |
| Plecoptera | | | |
| <i>Chloroperlidae</i> | 1 | 1 | 1,2,3,6 |
| <i>Siala parallela</i> | 1 | 1 | 6 |
| <i>Hesperoperla pacifica</i> | 1 | 1 | 6 |
| <i>Megarcys</i> | 1 | 1 | 6 |
| <i>Cultus</i> sp. | 1 | 1 | 6 |
| <i>Malenka</i> | 1,2 | 1,2 | 5 det |
| <i>Zapada</i> sp. | 1 | 1,2 | 5 det |
| <i>Perlidae</i> | 1 | 1 | 6 |
| <i>Perlodidae</i> | 1 | 1 | 6 |
| <i>Perlinodes</i> | 1 | 1 | 6 |
| <i>Amphinemura</i> | 1,2 | 1,2 | 1,2,5 det |
| <i>Isoperla</i> sp. | 1,2 | 1,2 | 1,2,6 chi,eph |
| <i>Calineuria</i> | 1 | 1 | 6 |
| <i>Pteronarcella badia</i> | 1,2 | 1,2 | 3,5,6 det |
| Trichoptera | | | |
| <i>Hydropsyche</i> sp. | 1,2 | 1,6 | 1,4 det,ani |
| <i>Cheumatopsyche</i> sp. | 1,2 | 1,6 | 1,4 det,ani |
| <i>Alisotrichia</i> | 1 | 1 | 1,2,3 |
| <i>Dicosmoecus</i> | 1 | 2 | 3,5,6 det |
| <i>Oligophlebodes</i> | 1 | 1 | 1,2,3 |
| <i>Neophylax</i> | 1,2 | 1,2 | 5 |
| <i>Micrasema</i> sp. | 1 | 2,8 | 1,2,5 |

TABLE 2 - Continued

| | | | |
|---|---|--|--|
| <u>Glossosoma</u> sp. | 1 | 1,8 | 3 dia |
| <u>Rhyacophila</u> sp. | 1 | 1 | 1,2,6 |
| <u>Ecclesiomyia</u> | 2 | 2 | 5 |
| <u>Polycentropus</u> | | | |
| Limnephilidae | 1,2 | 1,2,3 | 1,2,3,5 |
| <u>Hydroptila</u> | 1,2 | 1 | 3,7 |
| <u>Agraylea</u> | | | |
| Coleoptera | | | |
| Elmidae | 1 | 1,3 | 1,2,3 |
| Carabidae | | | |
| Diptera | | | |
| <u>Antocha monticola</u> | 1 | 1,7 | 1,2 |
| <u>Hexatoma</u> sp. | 1,2 | 1,2,5 | 6 |
| <u>Glutops rossi</u> | 2 | 2,5 | 7 |
| Simuliidae | 1 | 1 | 1,4 |
| Chironomidae | 1,2 | 2,5,7 | 1,2,4,6,7 |
| Empididae | 1,2 | 2,5 | 1,2,6 |
| Ceratopogonidae | 2 | 2,5 | 1,2 |
| <u>Atherix</u> | 1,2 | 3,4 | 1,2 |
| Tabanidae | 2 | 5 | 6 |
| <u>Maruina</u> | 2 | 5 | 1,2 |
| <u>Pericoma</u> | 2 | 5 | 1,2 |
| Ostracoda | 2 | 8 | 4 |
| Pelecypoda | 2 | 5 | 4 |
| <u>Planaria</u> sp. | 1 | 1,3,4 | 1 scavengers |
| Oligochaeta | 2 | 2,5 | 1,2 |
| Hydracarina | 1,2 | 1 | 7,8 |
| Nematoda | 1,2 | 1,2,5 | 1 det |
| Copepoda | 2-lentic | 3,4 | 1,3,4 det,ani |
| a. 1=lotic, erosional 2=lotic depositional | b. 1=clingers 2=sprawlers 3=climbers 4=swimmers 5=burrowers 6=net spinners 7=tube makers 8=case makers | c. 1=collectors 2=gatherers 3=scrapers 4=filterers 5=shredders 6=engulfers 7=piercers 8=parasitic | det=detritus dia=diatoms chi=Chironomidae eph=Ephemeroptera ani=animal |

TABLE 3. MT. HOOD NATIONAL FOREST--BADGER CREEK STATION 12.1
 ECOLOGICAL ASSOCIATIONS LIST FOR ALL OF THE TAXA FOUND IN SAMPLES
 TAKEN JUNE 7,8,9,15, JULY 14 AND SEPTEMBER 19, 1988

| Taxa | Habitat ^a | Habit ^b | Trophic Relationship ^c |
|---------------------------------|----------------------|--------------------|-----------------------------------|
| Ephemeroptera | | | |
| <i>Epeorus</i> sp. | 1 | 1 | 1,2,3 |
| <i>Cinygmulia</i> sp. | 1,2 | 1 | 1,2,3 det,dia |
| <i>Rhithrogena</i> sp. | 1 | 1 | 1,2,3 det,dia |
| <i>Ephemerella inermis</i> | 1,2 | 1 | 1,2 det,dia |
| <i>Ephemerella dodsi</i> | 1 | 1,2,4 | 1,2,3,6 det,dia |
| <i>Ephemerella spinifera</i> | 1 | 1,2,4 | 1,2,6 |
| <i>Ephemerella coloradensis</i> | 1,2 | 1 | 1,2,3 det,dia |
| <i>Ephemerella tibialis</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella delantala</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella teresa</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella hecuba</i> | 2 | 1,2,5 | 1,2 |
| <i>Ephemerella margarita</i> | 1 | 1 | 1,2 |
| <i>Paraleptophlebia</i> sp. | 1,2 | 1,2,4 | 1,2,5 det,dia |
| <i>Ameletus</i> sp. | 1,2 | 1,4 | 1,2 det,dia |
| <i>Baetis</i> sp. | 1,2 | 1,3,4 | 1,2,3 det,dia |
| Plecoptera | | | |
| <i>Chloroperlidae</i> | 1 | 1 | 1,2,3,6 |
| <i>Skwala parallela</i> | 1 | 1 | 6 |
| <i>Hesperoperla pacifica</i> | 1 | 1 | 6 |
| <i>Megarcys</i> | 1 | 1 | 6 |
| <i>Cultus</i> sp. | 1 | 1 | 6 |
| <i>Kogotus</i> | 1 | 1 | 6 |
| <i>Visoka</i> | 1 | 1,2 | 5 det |
| <i>Zapada</i> sp. | 1 | 1,2 | 5 det |
| <i>Malenka</i> | 1,2 | 1,2 | 5 det |
| <i>Yoraperla</i> | 1,2 | 1,2 | 3,5 det |
| <i>Capniidae</i> | 1,2 | 1,2 | 5 det |
| <i>Leuctridae</i> | 1,2 | 1,2 | 5 det |
| <i>Perlidae</i> | 1 | 1 | 6 |
| <i>Perlinodes</i> | 1 | 1 | 6 |
| <i>Amphinemura</i> | 1,2 | 1,2 | 1,2,5 det |
| <i>Isoperla</i> sp. | 1,2 | 1,2 | 1,2,6 chi,eph |
| <i>Calineuria</i> | 1 | 1 | 6 |
| <i>Isogenoides</i> | 1 | 1 | 3,6 |
| Trichoptera | | | |
| <i>Hydropsyche</i> sp. | 1,2 | 1,6 | 1,4 det,ani |
| <i>Glymphopsyche</i> | 2 | 2 | 1,4 |
| <i>Cheumatopsyche</i> sp. | 1,2 | 1,6 | 1,4 det,ani |
| <i>Ailostrichia</i> | 1 | 1 | 1,2,3 - |
| <i>Micrasema</i> sp. | 1 | 2,8 | 1,2,5 |
| <i>Glossosoma</i> sp. | 1 | 1,8 | 3 dia |
| <i>Rhyacophila</i> sp. | 1 | 1 | 1,2,6 |

TABLE 3 - Continued

| | | | |
|---|----------------|-------------|-------------------|
| <u>Psychomyia</u> | 1 | 1 | 1,2,3 |
| <u>Polycentropus</u> | 1 | 1 | 6,1,5 |
| Limnephilidae | 1,2 | 1,2,3 | 1,2,3,5 |
| Lepidostomatidae | 1,2 | 1,2,3,8 | 5 det |
| <u>Hesperophylax</u> | 1,2 | 2 | 5,3,1,2 det |
| <u>Hydroptila</u> | 1,2 | 1 | 3,7 |
| <u>Agraylea</u> | 1 | 1 | 7,1,2 |
| Coleoptera | | | |
| Elmidae | 1 | 1,3 | 1,2,3 |
| Diptera | | | |
| <u>Antocha monticola</u> | 1 | 1,7 | 1,2 |
| <u>Hexatoma</u> sp. | 1,2 | 1,2,5 | 6 |
| <u>Dicranota</u> | 1,2 | 2,5 | 1,5,6 |
| <u>Glutops rossi</u> | 2 | 2,5 | 7 |
| Simuliidae | 1 | 1 | 1,4 |
| Chironomidae | 1,2 | 2,5,7 | 1,2,4,6,7 |
| Empididae | 1,2 | 2,5 | 1,2,6 |
| Ceratopogonidae | 2 | 2,5 | 1,2 |
| <u>Dixa</u> | 1,2 | 4,1 | 1,2 |
| <u>Atherix</u> | 1,2 | 3,4 | 1,2 |
| Tabanidae | 2 | 5 | 6 |
| <u>Maruina</u> | 2 | 5 | 1,2 |
| <u>Pericoma</u> | 2 | 5 | 1,2 |
| Odonata | 2 | 1,3 | 6 |
| <u>Planaria</u> sp. | 1 | 1,3,4 | 1 scavengers |
| Ostracoda | 2 | 8 | 4 |
| Pelecypoda | 2 | 5 | 4 |
| Oligochaeta | 2 | 2,5 | 1,2 |
| Nematoda | 1,2 | 1,2,5 | 1 det |
| Copepoda | 2-lentic | 3,4 | 1,3,4 det, ani |
| Hydracarina | 1,2 | 1 | 7,8 |
| <u>Sialis</u> | 1,2 | 5,3,1 | 6 |
| Decapoda | 2 | 3,4 | 1,2,6 scavengers |
| a. 1=lotic, b. 1=clingers c. 1=collectors det=detritus | | | |
| erosional | 2=sprawlers | 2=gatherers | dia=diatoms |
| 2=lotic | 3=climbers | 3=scrapers | chi=Chironomidae |
| depositional | 4=swimmers | 4=filterers | eph=Ephemeroptera |
| | 5=burrowers | 5=shredders | ani=animal |
| | 6=net spinners | 6=engulfers | |
| | 7=tube makers | 7=piercers | |
| | 8=case makers | 8=parasitic | |

TABLE 4. PERCENT OF EACH TROPHIC GROUP FOUND IN THE MACROINVERTEBRATE COMMUNITIES OF BADGER CREEK STATION 6.2 ON THE DATES SAMPLED IN 1988

| Trophic Group | JUNE | | | JULY | | SEPTEMBER |
|------------------------|------|----|----|------|----|-----------|
| | 7 | 8 | 9 | 15 | 14 | 19 |
| Scrapers | 12 | 15 | 11 | 8 | 15 | 20 |
| Collectors - Gatherers | 45 | 56 | 53 | 52 | 50 | 44 |
| Filterers | 16 | 12 | 9 | 8 | 10 | 10 |
| Engulfers (predators) | 14 | 6 | 13 | 17 | 8 | 18 |
| Piercers | 1 | 1 | 1 | 5 | 5 | 3 |
| Shredders | 12 | 10 | 13 | 10 | 12 | 5 |

TABLE 5. PERCENT OF EACH TROPHIC GROUP FOUND IN THE MACROINVERTEBRATE COMMUNITIES OF BADGER CREEK STATION 9.3 ON THE DATES SAMPLED IN 1988

| Trophic Group | JUNE | | | JULY | | SEPTEMBER |
|------------------------|------|----|----|------|----|-----------|
| | 7 | 8 | 9 | 15 | 14 | 19 |
| Scrapers | 10 | 9 | 11 | 6 | 18 | 11 |
| Collectors - Gatherers | 53 | 50 | 51 | 61 | 45 | 44 |
| Filterers | 12 | 13 | 9 | 9 | 8 | 8 |
| Engulfers (predators) | 12 | 16 | 9 | 12 | 16 | 24 |
| Piercers | 5 | 3 | 9 | 3 | 5 | 5 |
| Shredders | 8 | 9 | 11 | 9 | 8 | 8 |

TABLE 6. PERCENT OF EACH TROPHIC GROUP FOUND IN THE MACROINVERTEBRATE COMMUNITIES OF BADGER CREEK STATION 12.1 ON THE DATES SAMPLED IN 1988

| Trophic Group | | | | | | |
|------------------------|----|----|----|------|------|-----------|
| | 7 | 8 | 9 | JUNE | JULY | SEPTEMBER |
| Scrapers | 8 | 14 | 14 | 8 | 14 | 11 |
| Collectors - Gatherers | 50 | 42 | 46 | 56 | 54 | 45 |
| Filterers | 11 | 8 | 10 | 11 | 8 | 3 |
| Engulfers (predators) | 15 | 19 | 14 | 11 | 8 | 23 |
| Piercers | 3 | 6 | 2 | 3 | 5 | 3 |
| Shredders | 13 | 11 | 14 | 11 | 11 | 15 |

TABLE 7. OCCURRENCE OF MACROINVERTEBRATE TAXA -- BADGER CREEK STATION 6.2
ON THE DATES SAMPLED. A PLUS (+) INDICATES PRESENCE, BLANK INDICATES ABSENCE

| Taxa | JUNE | | | | | JULY | SEPTEMBER | |
|---------------------------------|------|---|---|----|----|------|-----------|---|
| | 7 | 8 | 9 | 15 | 14 | | 19 | |
| Ephemeroptera | | | | | | | | |
| <u>Epeorus</u> sp. | + | + | + | + | + | | | + |
| <u>Cinygmulia</u> sp. | + | + | + | + | + | | | + |
| <u>Heptagenia</u> sp. | | | | | | + | | |
| <u>Rhithrogena</u> sp. | + | + | | | | | | + |
| <u>Ephemerella inermis</u> | + | + | + | + | + | | | + |
| <u>Ephemerella doddsi</u> | + | | + | | | + | | + |
| <u>Ephemerella spinifera</u> | + | | | | | | | |
| <u>Ephemerella coloradensis</u> | + | + | + | + | | | | |
| <u>Ephemerella tibialis</u> | + | + | + | + | + | | | |
| <u>Ephemerella delantalata</u> | + | + | + | | | | | |
| <u>Ephemerella teresa</u> | + | + | + | + | | | | |
| <u>Ephemerella hecuba</u> | | | | | | + | | |
| <u>Paraleptophlebia</u> sp. | + | + | | + | + | | | + |
| <u>Tricorythodes minutus</u> | | | + | | | | | + |
| <u>Ameletus</u> sp. | + | | | + | + | | | + |
| <u>Baetis</u> sp. | + | + | + | + | + | | | + |
| Plecoptera | | | | | | | | |
| <u>Chloroperlidae</u> | + | + | + | + | + | | | + |
| <u>Skwala parallela</u> | | | | + | | | | + |
| <u>Megarcys</u> | + | | | | | | | |
| <u>Cultus</u> sp. | | | | | | | | + |
| <u>Taenionema</u> sp. | | | | | | | | + |
| <u>Isoperla</u> sp. | | | | + | + | + | | + |
| <u>Isogenoides</u> | | | | | | | | + |
| <u>Zapada</u> sp. | + | | + | + | + | | | |
| <u>Malenka</u> | + | | | | | | | |
| Capniidae | | | | | | | | + |
| Leuctridae | | | | | | + | | |
| <u>Amphinemura</u> | + | + | + | + | + | | | + |
| <u>Podmosta</u> sp. | | | + | | | | | |
| Perlidae | | | | | + | + | | + |
| Perlodidae | | | | | | + | | |
| <u>Perlinodes</u> | | | | | + | + | | + |
| <u>Hesperoperla pacifica</u> | + | | | + | | | | + |
| <u>Claassenia sabulosa</u> | | | | | | | | + |
| <u>Calineuria</u> | | | + | | | | | |
| <u>Pteronarcella badia</u> | + | | | | | | | + |
| Trichoptera | | | | | | | | |
| <u>Hydropsyche</u> sp. | + | + | + | + | + | | | + |
| <u>Cheumatopsyche</u> sp. | + | + | + | + | + | | | + |
| <u>Alisotrichia</u> | | | | | | | | + |
| <u>Arctopsycha</u> sp. | + | | | + | | | | |
| <u>Dicosmoecus</u> | + | | | | | + | | |

TABLE 7 - Continued

| Taxa | JUNE | | | | | JULY | SEPTEMBER |
|--------------------------|------|---|---|----|----|------|-----------|
| | 7 | 8 | 9 | 15 | 14 | 19 | |
| <u>Neophylax</u> | + | + | + | + | | | |
| <u>Micrasema</u> sp. | + | + | + | + | | | |
| <u>Amiocentrus</u> | | | | + | | | |
| <u>Glossosoma</u> sp. | + | + | + | + | + | | + |
| <u>Rhyacophila</u> sp. | + | + | + | + | + | | + |
| <u>Ecclyisomyia</u> | + | | | | | | |
| Limnephilidae | + | + | + | + | | | |
| <u>Hesperophylax</u> | | | | + | + | | |
| <u>Manophylax</u> | | | + | | | | |
| Philopotamidae | + | | | | | | |
| <u>Hydroptila</u> | + | | + | | + | | |
| <u>Goera</u> | | | + | | | | + |
| <u>Agravlea</u> | | | | | + | | |
| Coleoptera | | | | | | | |
| Elmidae | + | + | + | + | + | | + |
| Dytiscidae | | | | | + | | |
| Diptera | | | | | | | |
| <u>Antocha monticola</u> | + | + | + | + | + | | + |
| <u>Hexatoma</u> sp. | + | + | + | + | + | | + |
| <u>Discanota</u> | | | | | + | | |
| <u>Glutops rossi</u> | | | | + | | | |
| Simuliidae | + | + | + | + | + | | + |
| Chironomidae | + | + | + | + | + | | + |
| Empididae | + | + | + | + | | | + |
| Ceratopogonidae | + | + | + | + | | | |
| <u>Atherix</u> | + | + | + | + | + | | + |
| Tabanidae | + | | | + | | | |
| <u>Maruina</u> | + | + | + | | | | |
| Odonata | | | | | | | |
| Gomphidae | | | + | + | | | |
| <u>Ophiogomphus</u> | | | | + | | | |
| Coenagrionidae | | | | | | | + |
| Ostracoda | + | | + | + | + | | + |
| Pelecypoda | + | | + | + | | | |
| Oligochaeta | + | + | + | + | + | | + |
| Hydracarina | + | + | + | + | + | | + |
| Nematoda | + | + | + | + | + | | + |
| Copepoda | | | | | | | + |

TABLE 8. OCCURRENCE OF MACROINVERTEBRATE TAXA -- BADGER CREEK STATION 9.3
ON THE DATES SAMPLED. A PLUS (+) INDICATES PRESENCE, BLANK INDICATES ABSENCE

| Taxa | JUNE | | | | | JULY | SEPTEMBER |
|----------------------------------|------|---|---|----|----|------|-----------|
| | 7 | 8 | 9 | 15 | 14 | 19 | |
| Ephemeroptera | | | | | | | |
| <i>Epeorus</i> sp. | + | + | + | + | + | | + |
| <i>Cinygmulia</i> sp. | + | + | + | + | + | | + |
| <i>Rhithrogena</i> sp. | + | | + | | | + | |
| <i>Heptagenia</i> sp. | | | | | | + | + |
| <i>Ephemerella inermis</i> | + | + | + | + | + | | + |
| <i>Ephemerella doddsi</i> | + | + | + | + | + | | + |
| <i>Ephemerella spinifera</i> | | | | | | + | + |
| <i>Ephemerella coloradensis</i> | + | + | + | + | | | |
| <i>Ephemerella tibialis</i> | + | + | + | + | + | | + |
| <i>Ephemerella delantala</i> | | | | | | + | |
| <i>Ephemerella teresa</i> | | | | + | + | | |
| <i>Ephemerella hecuba</i> | | | | | | + | |
| <i>Ephemerella heterocaudata</i> | + | | | | | | |
| <i>Ephemerella orestes</i> | + | | | | | | |
| <i>Paraleptophlebia</i> sp. | + | + | + | + | + | | + |
| <i>Tricorythodes minutus</i> | | | | | | | + |
| <i>Ameletus</i> sp. | + | + | + | + | + | | + |
| <i>Baetis</i> sp. | + | + | + | + | + | | + |
| Plecoptera | | | | | | | |
| <i>Chloroperlidae</i> | + | + | + | + | + | | + |
| <i>Skwala parallela</i> | | | | | | | + |
| <i>Hesperoperla pacifica</i> | + | + | | + | + | | + |
| <i>Megarcys</i> | | | | | | | + |
| <i>Cultus</i> sp. | | | | | | + | + |
| <i>Malenka</i> | | | | | | | + |
| <i>Zapada</i> sp. | + | + | + | + | + | | + |
| <i>Perlidae</i> | + | + | | | | + | |
| <i>Perlodidae</i> | | | + | | | | |
| <i>Perlinodes</i> | | | | | | | + |
| <i>Amphinemura</i> | + | + | + | + | + | | + |
| <i>Isoperla</i> sp. | | | | + | + | | + |
| <i>Calineuria</i> | + | + | | | | | + |
| <i>Pteronarcella badia</i> | | | | | | + | |
| Trichoptera | | | | | | | |
| <i>Hydropsyche</i> sp. | + | + | + | + | | | + |
| <i>Cheumatopsyche</i> sp. | + | | | | | | |
| <i>Alisotrichia</i> | | | | | | | + |
| <i>Dicosmoecus</i> | | | | + | | | |
| <i>Oligophlebodes</i> | + | | | | | | |
| <i>Neophylax</i> | + | + | + | + | + | | + |
| <i>Micrasema</i> sp. | + | + | + | + | | | |
| <i>Glossosoma</i> sp. | + | + | | | | + | |
| <i>Rhyacophila</i> sp. | + | + | - | + | + | + | |

TABLE 8 - Continued

| Taxa | JUNE | | | | | JULY | | SEPTEMBER | |
|--------------------------|------|---|---|----|----|------|--|-----------|--|
| | 7 | 8 | 9 | 15 | 14 | | | 19 | |
| <u>Ecclesomyia</u> | | | | + | | | | | |
| <u>Polycentropus</u> | | | | | | | | + | |
| Limnephilidae | + | + | + | | | | | | |
| <u>Hydroptila</u> | | | | | | + | | + | |
| <u>Agraylea</u> | | | | | | + | | | |
| Coleoptera | | | | | | | | | |
| Elmidae | + | + | + | + | + | | | + | |
| Carabidae | | | | | | + | | | |
| Diptera | | | | | | | | | |
| <u>Antocha monticola</u> | + | + | + | + | + | | | + | |
| <u>Hexatoma</u> sp. | + | | + | + | + | | | + | |
| <u>Glutops kossi</u> | + | | + | | | + | | + | |
| Simuliidae | + | + | + | + | + | | | + | |
| Chironomidae | + | + | + | + | + | | | + | |
| Empididae | + | + | + | + | + | | | + | |
| Ceratopogonidae | + | + | + | + | + | | | + | |
| <u>Atherix</u> | | | | | + | | | | |
| Tabanidae | | + | | | | | | | |
| <u>Maruina</u> | + | + | + | + | / | | | | |
| <u>Pericoma</u> | + | | | | | | | + | |
| Ostracoda | + | + | + | + | + | | | + | |
| Pelecypoda | + | + | | | | | | | |
| <u>Planaria</u> sp. | + | + | | + | | | | | |
| Oligochaeta | + | + | + | + | + | | | + | |
| Hydracarina | + | + | + | + | + | | | + | |
| Nematoda | + | + | + | | | + | | + | |
| Copepoda | + | + | + | | | | | | |

TABLE 9. OCCURRENCE OF MACROINVERTEBRATE TAXA -- BADGER CREEK STATION 12.1
ON THE DATES SAMPLED. A PLUS (+) INDICATES PRESENCE, BLANK INDICATES ABSENCE

| Taxa | JUNE | | | JULY | | SEPTEMBER | |
|---------------------------------|------|---|---|------|----|-----------|---|
| | 7 | 8 | 9 | 15 | 14 | 19 | |
| Ephemeroptera | | | | | | | |
| <u>Epeorus</u> sp. | + | + | + | + | + | | + |
| <u>Cinygmulia</u> sp. | + | + | + | + | + | | + |
| <u>Rhithrogena</u> sp. | | + | + | | + | | |
| <u>Ephemerella inermis</u> | + | + | + | + | + | | + |
| <u>Ephemerella doddsi</u> | + | + | + | + | + | | + |
| <u>Ephemerella spinifera</u> | | | | | | | + |
| <u>Ephemerella coloradensis</u> | + | + | + | + | | | |
| <u>Ephemerella gibialis</u> | + | + | + | + | + | | |
| <u>Ephemerella delantala</u> | + | | | | | | |
| <u>Ephemerella teresa</u> | + | | | + | + | | |
| <u>Ephemerella hecuba</u> | | | | | | | + |
| <u>Ephemerella margarita</u> | | | | | | | + |
| <u>Paraleptophlebia</u> sp. | + | + | + | + | + | | + |
| <u>Ameletus</u> sp. | + | + | + | + | + | | + |
| <u>Baetis</u> sp. | + | + | + | + | + | | + |
| Plecoptera | | | | | | | |
| <u>Chloroperlidae</u> | + | + | + | + | + | | + |
| <u>Skwala parallela</u> | | | | | | | + |
| <u>Hesperoperla pacifica</u> | + | + | + | + | + | | |
| <u>Megarcys</u> | + | + | | | | | + |
| <u>Cultus</u> sp. | | | + | | | | + |
| <u>Kogotus</u> | + | | + | | | | |
| <u>Visoka</u> | + | + | + | + | + | | |
| <u>Zapada</u> sp. | + | + | + | + | + | | + |
| <u>Malenka</u> | | | + | | | | + |
| <u>Yoraperla</u> | | | + | | | | |
| Capniidae | | | | | | | + |
| <u>Leuctridae</u> | + | | + | + | | | |
| <u>Perlidae</u> | + | + | | + | | | |
| <u>Perlinodes</u> | | | | | | | + |
| <u>Amphinemura</u> | + | + | + | + | + | | + |
| <u>Isoperla</u> sp. | | | + | + | + | | |
| <u>Calineuria</u> | | | + | | | | |
| <u>Isogenoides</u> | | | + | | | | |
| Trichoptera | | | | | | | |
| <u>Hydropsyche</u> sp. | + | + | + | + | + | | |
| <u>Glymphopsyche</u> | | | + | | | | |
| <u>Cheumatopsyche</u> sp. | + | | | | | | |
| <u>Alisotrichia</u> | | | | | | | + |
| <u>Micrasema</u> sp. | + | + | + | + | + | | + |
| <u>Glossosoma</u> sp. | + | + | | + | + | | + |
| <u>Rhyacophila</u> sp. | + | + | + | + | + | | + |
| <u>Psychomyia</u> | | | | | | | + |

TABLE 9 - Continued

| Taxa | JUNE | | | | | JULY | SEPTEMBER |
|--------------------------|------|---|---|----|----|------|-----------|
| | 7 | 8 | 9 | 15 | 14 | 19 | |
| <u>Polycentropus</u> | | | | | | | + |
| Limnephilidae | + | + | | + | + | | |
| Lepidostomatidae | + | | | | | | + |
| <u>Hesperophylax</u> | | | | | | + | |
| <u>Hydroptila</u> | | | + | | + | | + |
| <u>Agraylea</u> | | | | | + | | |
| Coleoptera | | | | | | | |
| Elmidae | + | + | + | + | + | | + |
| Diptera | | | | | | | |
| <u>Antocha monticola</u> | + | + | + | + | + | | + |
| <u>Hexatoma</u> sp. | | + | | + | | | + |
| <u>Dicranota</u> | | + | | | | | + |
| <u>Glutops kossi</u> | | + | | | | | |
| Simuliidae | + | + | + | + | + | | |
| Chironomidae | + | + | + | + | + | | + |
| Empididae | + | | + | + | + | | |
| Ceratopogonidae | + | + | + | + | + | | + |
| <u>Dixa</u> | | | | | | + | |
| <u>Atherix</u> | | + | + | + | | | |
| Tabanidae | | + | | | | | |
| <u>Maruina</u> | | + | | + | | | |
| <u>Pericoma</u> | | | | | | | + |
| Odonata | | | | | | + | |
| <u>Planaria</u> sp. | + | + | | + | + | | |
| Ostracoda | + | + | + | + | + | | + |
| Pelecypoda | | | | + | | | |
| Oligochaeta | + | + | + | + | + | | + |
| Nematoda | + | + | + | + | | | |
| Copepoda | | + | | | | | + |
| Hydracarina | + | + | + | + | + | | + |
| <u>Sialis</u> | | + | | | | | |
| Decapoda | | | | | | | + |

TOTAL SAMPLE STATISTICS

STATION: 6.2

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 07 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 46 | 18740. | 13464. | 24015. | 7694.75 | 18.36 | 41.08 | 3.0025 | 0.4573 | 50. | 55. |

SPECIES TOLERANCE CODES

- = Clean water species**
- = Moderately tolerant species**
- = Shredders - Depend upon deciduous vegetation from riparian areas)**
- S = Sediment tolerant**
- O = Organic enrichment tolerant**
- Ch = Resistant to adverse chemistry**
- C = Large stonefly species**

SPECIES ANALYSES

STATION: 6.2

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 07 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|-----------------|------------------|--------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 387.36 | 2.588 | 21. | 54. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 163.55 | 2.214 | 30. | 66. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | RHITHROGENA | | 51.65 | 1.713 | 21. | 36. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | COLORADENSIS | 163.55 | 2.214 | 18. | 40. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 137.73 | 2.139 | 48. | 103. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 51.65 | 1.713 | 2. | 3. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 103.30 | 2.014 | 24. | 48. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | SPINIFERA | 68.86 | 1.838 | 24. | 44. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 68.86 | 1.838 | 24. | 44. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 17.22 | 1.236 | 48. | 59. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 1962.62 | 3.293 | 72. | 237. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DELANTALA | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TERESA | 103.30 | 2.014 | 24. | 48. | |
| INSECTA | PLECOPTERA | | | | 17.22 | 1.236 | 48. | 59. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 137.73 | 2.139 | 24. | 51. | |
| INSECTA | PLECOPTERA | PERLODIDAE | MEGARCYS | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | PLECOPTERA | PTERONARCYIDAE | PTERONARCELLA | BADIA | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 25.82 | 1.412 | 18. | 23. | |
| INSECTA | PLECOPTERA | PERLIDAE | HESPEROPERLA | PACIFICA | 8.61 | 0.935 | 18. | 17. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | MALENKA | | 17.22 | 1.236 | 36. | 44. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 34.43 | 1.537 | 6. | 9. | |
| INSECTA | TRICHOPTERA | | | | 25.82 | 1.412 | 72. | 102. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 215.20 | 2.333 | 108. | 252. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | CHEUMATOPSYCHE | | 232.42 | 2.368 | 108. | 256. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | ARCTOPSYCHE | | 17.22 | 1.236 | 18. | 22. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | DICOSMOECUS | | 34.43 | 1.537 | 24. | 37. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | NEOPHYLAX | | 51.65 | 1.713 | 24. | 41. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 68.86 | 1.838 | 24. | 44. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 34.43 | 1.537 | 18. | 28. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 241.02 | 2.382 | 24. | 57. | |
| INSECTA | TRICHOPTERA | PHILOPOTAMIDAE | | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 2849.25 | 3.455 | 104. | 359. | |
| INSECTA | DIPTERA | TIJULIDAE | ANTOCHA | MONTICOLA | 197.98 | 2.297 | 24. | 55. | |
| INSECTA | DIPTERA | TIJULIDAE | HEXTATOMA | | 482.05 | 2.683 | 36. | 97. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 275.46 | 2.440 | 108. | 264. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 9038.40 | 3.956 | 108. | 427. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 77.47 | 1.889 | 95. | 179. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | ATHERIX | | 43.04 | 1.634 | 108. | 178. | |
| INSECTA | DIPTERA | RHAGIONIDAE | | | 86.08 | 1.935 | 24. | 46. | |
| INSECTA | DIPTERA | TABANIDAE | | | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | DIPTERA | PSYCHODIDAE | MARUINA | | 120.51 | 2.081 | 36. | 75. | |
| CRUSTACEA | OSTRACODA | | | | 17.22 | 1.236 | 108. | 133. | |
| PELICYPEDA | | | | | 25.82 | 1.412 | 108. | 152. | |
| OLIGOCHAETA | | | | | 275.46 | 2.440 | 108. | 264. | |
| ARACHNIDA | HYDRACARINA | | | | 327.10 | 2.515 | 98. | 246. | |
| NEMATODA | | | | | 395.97 | 2.598 | 108. | 281. | |
| | | | TOTALS | | 18739.62 | 4.273 | | 3.10 | |

TOTAL SAMPLE STATISTICS

STATION: 9.3

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 07 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 44 | 13717. | 9223. | 18211. | 6555.09 | 21.37 | 47.79 | 2.8730 | 0.4747 | 53. | 56. |

SPECIES ANALYSES

STATION: 9.3

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 07 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|---------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 662.82 | 2.821 | 21. | 59. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 17.22 | 1.236 | 30. | 37. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | RHITHROGENA | | 17.22 | 1.236 | 21. | 26. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | COLORADENSIS | 43.04 | 1.634 | 18. | 29. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 92.54 | 1.968 | 48. | 94. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 178.62 | 2.252 | 2. | 5. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 135.58 | 2.132 | 24. | 51. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 32.28 | 1.509 | 24. | 36. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 27.98 | 1.447 | 48. | 69. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 798.39 | 2.902 | 72. | 209. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | HETEROCAUDATA | 10.76 | 1.032 | 24. | 25. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | ORESTES | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | PLECOPTERA | | | | 8.61 | 0.935 | 48. | 45. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | ZAPADA | | 204.44 | 2.311 | 24. | 55. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | | | 23.67 | 1.374 | 16. | 22. | |
| INSECTA | PLECOPTERA | PERLIDAE | CALINEURIA | | 23.67 | 1.374 | 24. | 33. | |
| INSECTA | PLECOPTERA | PERLIDAE | HESPEROPERLA | PACIFICA | 40.89 | 1.612 | 18. | 29. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 75.32 | 1.877 | 8. | 11. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 25.82 | 1.412 | 24. | 34. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 118.36 | 2.073 | 108. | 224. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | CHEUMATOPSYCHE | | 6.46 | 0.810 | 108. | 87. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | NEOPHYLAX | | 25.82 | 1.412 | 24. | 34. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | OLIGOPHLEBODES | | 25.82 | 1.412 | 24. | 34. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 79.62 | 1.901 | 24. | 46. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 92.54 | 1.966 | 18. | 35. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 1375.13 | 3.138 | 104. | 326. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 456.22 | 2.659 | 24. | 64. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXTATOMA | | 172.18 | 2.236 | 36. | 80. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 114.06 | 2.057 | 108. | 222. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 7265.15 | 3.881 | 108. | 417. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 27.98 | 1.447 | 95. | 137. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 120.51 | 2.081 | 108. | 226. | |
| INSECTA | DIPTERA | PSYCHODIDAE | PERICOMA | | 8.61 | 0.935 | 36. | 34. | |
| INSECTA | DIPTERA | PSYCHODIDAE | MARUINA | | 19.37 | 1.287 | 36. | 46. | |
| INSECTA | DIPTERA | PELECOPHYNCHIDAE | GLUTOPS | ROSSI | 23.67 | 1.374 | 30. | 41. | |
| INSECTA | DIPTERA | TIPULIDAE | | | 6.46 | 0.810 | 72. | 58. | |
| CRUSTACEA | COPEPODA | | | | 17.22 | 1.236 | 108. | 133. | |
| CRUSTACEA | OSTRACODA | | | | 17.22 | 1.236 | 108. | 133. | |
| PELECYPODA | | | | | 8.61 | 0.935 | 108. | 101. | |
| TURBELLARIA | TRICLADIDA | PLANARIIDAE | PLANARIA | | 34.43 | 1.537 | 108. | 166. | |
| OLIGOCHAETA | | | | | 221.66 | 2.346 | 108. | 253. | |
| ARACHNIDA | HYDRACARINA | | | | 905.99 | 2.957 | 98. | 290. | |
| NEMATODA | | | | | 129.12 | 2.111 | 108. | 228. | |
| | | | | TOTALS | 13716.85 | 4.137 | | 2.30 | |

TOTAL SAMPLE STATISTICS

STATION: 12.1

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 07 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|-------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 42 | 5219. | 3183. | 7254. | 2969.06 | 25.44 | 56.89 | 3.6596 | 0.3221 | 57. | 61. |

SPECIES ANALYSES

STATION: 12.1

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 07 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|--------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 258.24 | 2.412 | 21. | 51. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 47.34 | 1.675 | 30. | 50. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | COLORADENSIS | 43.04 | 1.634 | 18. | 29. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 8.61 | 0.935 | 48. | 45. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 34.43 | 1.537 | 2. | 3. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 187.22 | 2.272 | 24. | 55. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 75.32 | 1.877 | 48. | 90. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 361.54 | 2.558 | 72. | 184. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TERESA | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DELANTALA | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 148.49 | 2.172 | 24. | 52. | |
| INSECTA | PLECOPTERA | PERLODIDAE | MEGARCYS | | 17.22 | 1.238 | 24. | 30. | |
| INSECTA | PLECOPTERA | PERLODIDAE | KOGOTUS | | 17.22 | 1.236 | 18. | 22. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 18.61 | 0.935 | 16. | 15. | |
| INSECTA | PLECOPTERA | PERLIDAE | HESPEROPERLA | PACIFICA | 10.76 | 1.032 | 18. | 19. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 16.46 | 0.810 | 6. | 5. | |
| INSECTA | PLECOPTERA | LEUCTRIDAE | | | 30.13 | 1.479 | 18. | 27. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | VISOKA | | 8.61 | 0.935 | 108. | 101. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 77.47 | 1.889 | 108. | 204. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | CHEUMATOPSYCHE | | 8.61 | 0.935 | 108. | 101. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | | | 8.61 | 0.935 | 108. | 101. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 36.58 | 1.563 | 24. | 38. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 43.04 | 1.634 | 18. | 29. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | TRICHOPTERA | LEPIDOSTOMATIDAE | | | 8.46 | 0.810 | 18. | 15. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 574.58 | 2.759 | 104. | 287. | |
| INSECTA | DIPTERA | | | | 8.61 | 0.935 | 108. | 101. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 79.62 | 1.901 | 24. | 46. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 43.04 | 1.834 | 108. | 176. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 1816.29 | 3.259 | 108. | 352. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 19.37 | 1.287 | 95. | 122. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 68.86 | 1.838 | 108. | 199. | |
| INSECTA | DIPTERA | TIPULIDAE | | | 12.91 | 1.111 | 72. | 80. | |
| INSECTA | DIPTERA | PSYCHODIDAE | MARUINA | | 64.56 | 1.810 | 38. | 65. | |
| INSECTA | DIPTERA | TABANIDAE | | | 12.91 | 1.111 | 108. | 120. | |
| CRUSTACEA | OSTRACODA | | | | 344.32 | 2.537 | 108. | 274. | |
| TURBELLARIA | TRICLADIDA | PLANARIIDAE | PLANARIA | | 17.22 | 1.236 | 108. | 133. | |
| OLIGOCHAETA | | | | | 249.83 | 2.397 | 108. | 259. | |
| ARACHNIDA | HYDRACARINA | | | | 367.99 | 2.566 | 98. | 251. | |
| NEMATODA | | | | | 34.43 | 1.537 | 108. | 186. | |
| | | | | TOTALS | 5218.60 | 3.718 | | 0.63 | |

TOTAL SAMPLE STATISTICS

STATION: 6.2

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 08 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 39 | 23747. | 19436. | 28059. | 6288.44 | 11.84 | 26.48 | 2.6154 | 0.5057 | 59. | 62. |

SPECIES ANALYSES

STATION: 6.2

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 08 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|-----------------|------------------|--------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 505.72 | 2.704 | 21. | 57. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 94.89 | 1.976 | 30. | 59. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | RHITHROGENA | | 17.22 | 1.236 | 21. | 26. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | COLORADENSIS | 154.94 | 2.190 | 18. | 39. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 5 | 17.22 | 1.236 | 48. | 59. |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 189.38 | 2.277 | 24. | 56. | |
| INSECTA | EPHEMEROPTERA | TRICORYTHIDAE | TRICORYTHODES | MINUTUS | 5 | 17.22 | 1.236 | 108. | 133. |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 25.82 | 1.412 | 24. | 34. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 5, 0 | 1962.62 | 3.293 | 72. | 237. |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TERESA | 1 | 344.32 | 2.537 | 24. | 61. |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DEALANTALA | 1 | 17.22 | 1.236 | 24. | 30. |
| INSECTA | PLECOPTERA | | | | 34.43 | 1.537 | 48. | 74. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 1 | 301.28 | 2.479 | 24. | 59. |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 1 | 34.43 | 1.537 | 6. | 9. |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | ECCLISOMYIA | | 1 | 34.43 | 1.537 | 24. | 37. |
| INSECTA | TRICHOPTERA | | | | 94.69 | 1.976 | 72. | 142. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 5 | 352.93 | 2.548 | 108. | 275. |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | CHEUMATOPSYCHE | | 5 | 86.08 | 1.935 | 108. | 209. |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | | | 5 | 17.22 | 1.236 | 108. | 133. |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | MANOPHYLAX | | 5 | 43.04 | 1.634 | 72. | 118. |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 1 | 86.08 | 1.935 | 24. | 46. |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 1 | 86.08 | 1.935 | 18. | 35. |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 1 | 68.86 | 1.838 | 24. | 44. |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | NEOPHYLAX | | 1 | 68.86 | 1.838 | 24. | 44. |
| INSECTA | COLEOPTERA | ELMIDAE | | | 5 | 2496.32 | 3.397 | 104. | 353. |
| INSECTA | DIPTERA | | | | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 1 | 352.93 | 2.548 | 24. | 61. |
| INSECTA | DIPTERA | TIPULIDAE | HEXATOMA | | 5 | 120.51 | 2.081 | 36. | 75. |
| INSECTA | DIPTERA | SIMULIIDAE | | | 5, 0 | 232.42 | 2.368 | 108. | 256. |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 1 | 13712.54 | 4.137 | 108. | 447. |
| INSECTA | DIPTERA | EMPIDIDAE | | | 5 | 86.08 | 1.935 | 95. | 184. |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 5, 0 | 51.65 | 1.713 | 108. | 185. |
| INSECTA | DIPTERA | RHAGIONIDAE | ATHERIX | | 5, 0 | 86.08 | 1.935 | 24. | 46. |
| INSECTA | DIPTERA | PSYCHODIDAE | MARUINA | | 5, 0 | 103.30 | 2.014 | 36. | 73. |
| INSECTA | DIPTERA | TIPULIDAE | | | 5 | 51.65 | 1.713 | 72. | 123. |
| PELECYPoda | | | | | 5 | 86.08 | 1.935 | 108. | 209. |
| OLIGOCHAETA | | | | | 0, 5 | 430.40 | 2.634 | 108. | 284. |
| ARACHNIDA | HYDRACARINA | | | | 5 | 998.53 | 2.999 | 98. | 294. |
| NEMATODA | | | | | 5 | 268.85 | 2.426 | 108. | 262. |

TOTALS

23747.32 4.378

2.70

TOTAL SAMPLE STATISTICS

STATION: 9.3

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 08 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 41 | 11782. | 7642. | 15923. | 6039.20 | 22.92 | 51.28 | 2.7546 | 0.4870 | 58. | 64. |

SPECIES ANALYSES

STATION: 9.3

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 08 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|-----------------|------------------|--------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | | | | 45.19 | 1.655 | 64. | 106. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 290.52 | 2.463 | 21. | 52. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 40.89 | 1.612 | 30. | 48. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | COLORADENSIS | 17.22 | 1.236 | 18. | 22. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 86.08 | 1.935 | 48. | 93. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 17.22 | 1.236 | 2. | 2. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 94.69 | 1.976 | 24. | 47. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 111.90 | 2.049 | 24. | 49. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 189.38 | 2.277 | 48. | 109. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 439.01 | 2.842 | 72. | 190. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DELANTALA | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 204.44 | 2.311 | 24. | 55. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOPERLA | | 8.61 | 0.935 | 48. | 45. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 43.04 | 1.634 | 16. | 26. | |
| INSECTA | PLECOPTERA | PERLIDAE | CALINEURIA | | 6.46 | 0.810 | 24. | 19. | |
| INSECTA | PLECOPTERA | PERLIDAE | HESPEROPERLA | PACIFICA | 8.61 | 0.935 | 18. | 17. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 34.43 | 1.537 | 6. | 9. | |
| INSECTA | PLECOPTERA | PERLODIDAE | | | 17.22 | 1.236 | 48. | 59. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 15.06 | 1.178 | 24. | 28. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 25.82 | 1.412 | 108. | 152. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | | | 94.69 | 1.976 | 108. | 213. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | NEOPHYLAX | | 10.76 | 1.032 | 24. | 25. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 77.47 | 1.889 | 24. | 45. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 43.04 | 1.634 | 18. | 29. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 10.76 | 1.032 | 24. | 25. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 1345.00 | 3.129 | 104. | 325. | |
| INSECTA | DIPTERA | | | | 34.43 | 1.537 | 108. | 166. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 137.73 | 2.139 | 24. | 51. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 109.75 | 2.040 | 108. | 220. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 6238.65 | 3.795 | 108. | 410. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 34.43 | 1.537 | 95. | 146. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 103.30 | 2.014 | 108. | 218. | |
| INSECTA | DIPTERA | TIPULIDAE | | | 25.82 | 1.412 | 72. | 102. | |
| INSECTA | DIPTERA | TABANIDAE | | | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | DIPTERA | PSYCHODIDAE | MARUINA | | 8.61 | 0.935 | 36. | 34. | |
| CRUSTACEA | COPEPODA | | | | 34.43 | 1.537 | 108. | 166. | |
| CRUSTACEA | OSTRACODA | | | | 68.86 | 1.838 | 108. | 199. | |
| PELCYPODA | | | | | 34.43 | 1.537 | 108. | 166. | |
| OLIGOCHAETA | | | | | 217.35 | 2.337 | 108. | 252. | |
| ARACHNIDA | HYDRACARINA | | | | 1413.86 | 3.150 | 98. | 309. | |
| NEMATODA | | | | | 17.22 | 1.236 | 108. | 133. | |
| | | | | TOTALS | 11782.20 | 4.071 | | 1.40 | |

TOTAL SAMPLE STATISTICS

STATION: 12.1

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 08 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 43 | 8522. | 8055. | 10989. | 3597.93 | 18.88 | 42.22 | 3.2812 | 0.3968 | 54. | 58. |

SPECIES ANALYSES

STATION: 12.1

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 08 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|--------------|-------------|--------------|--------------------|------------|----------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 94.69 | 1.976 | 21. | 42. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 142.03 | 2.152 | 30. | 65. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | RHITHROGENA | | 25.82 | 1.412 | 21. | 30. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | COLORADENSIS | 38.74 | 1.588 | 18. | 29. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 98.99 | 1.996 | 48. | 96. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 43.04 | 1.634 | 2. | 3. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 77.47 | 1.889 | 24. | 45. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 348.62 | 2.542 | 24. | 61. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 21.52 | 1.333 | 48. | 64. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 525.09 | 2.720 | 72. | 196. | |
| INSECTA | PLECOPTERA | | | | 8.61 | 0.935 | 48. | 45. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 146.34 | 2.165 | 24. | 52. | |
| INSECTA | PLECOPTERA | PERLODIDAE | MEGARCYS | | 12.91 | 1.111 | 24. | 27. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 17.22 | 1.236 | 16. | 20. | |
| INSECTA | PLECOPTERA | PERLIDAE | CALINEURIA | | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | PLECOPTERA | PERLIDAE | HESPEROPERLA | PACIFICA | 30.13 | 1.479 | 18. | 27. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 8.61 | 0.935 | 6. | 6. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOGENOIDES | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | VISOKA | | 25.82 | 1.412 | 108. | 152. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | TRICHOPTERA | | | | 8.61 | 0.935 | 72. | 67. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 137.73 | 2.139 | 108. | 231. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | | | 4.30 | 0.634 | 108. | 68. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 68.86 | 1.838 | 24. | 44. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 68.86 | 1.838 | 18. | 33. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 1631.22 | 3.213 | 104. | 334. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 142.03 | 2.152 | 24. | 52. | |
| INSECTA | DIPTERA | TIPULIDAE | DICRANOATA | | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXATOMA | | 4.30 | 0.634 | 36. | 23. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 4.30 | 0.634 | 108. | 68. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 2892.29 | 3.461 | 108. | 374. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 25.82 | 1.412 | 108. | 152. | |
| INSECTA | DIPTERA | RHAGIONIDAE | ATHERIX | | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | DIPTERA | TIPULIDAE | | | 8.61 | 0.935 | 72. | 67. | |
| INSECTA | DIPTERA | PELECORHYNCHIDAE | GLUTOPS | ROSSI | 8.61 | 0.935 | 30. | 28. | |
| INSECTA | MEGAZOPTERA | SIALIDAE | SIALIS | | 8.61 | 0.935 | 72. | 67. | |
| CRUSTACEA | COPEPODA | | | | 8.61 | 0.935 | 108. | 101. | |
| CRUSTACEA | OSTRACODA | | | | 219.50 | 2.341 | 108. | 253. | |
| TURBELLARIA | TRICLADIDA | PLANARIIDAE | PLANARIA | | 25.82 | 1.412 | 108. | 152. | |
| OLIGOCHAETA | | | | | 331.41 | 2.520 | 108. | 272. | |
| ARACHNIDA | HYDRACARINA | | | | 1179.30 | 3.072 | 98. | 301. | |
| NEMATODA | | | | | 8.61 | 0.935 | 108. | 101. | |
| | | | | | TOTALS | 8521.92 | 3.931 | | 1.30 |

TOTAL SAMPLE STATISTICS

STATION: 6.2

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 09 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 42 | 22357. | 14786. | 29928. | 11042.93 | 22.09 | 49.39 | 2.6145 | 0.5157 | 57. | 61. |

SPECIES ANALYSES

STATION: 6.2

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 09 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|-----------------|----------------|--------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 585.34 | 2.767 | 21. | 58. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 79.82 | 1.901 | 30. | 57. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | COLORADENSIS | 68.86 | 1.838 | 18. | 33. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 161.40 | 2.208 | 48. | 106. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 17.22 | 1.236 | 2. | 2. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 68.86 | 1.838 | 24. | 44. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 1900.22 | 3.279 | 72. | 236. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TERESA | 92.54 | 1.966 | 24. | 47. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DELANTALA | 34.43 | 1.537 | 24. | 37. | |
| INSECTA | PLECOPTERA | | | | 17.22 | 1.236 | 48. | 59. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | PODMOSTA | | 137.73 | 2.139 | 24. | 51. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | | | 140.89 | 1.612 | 12. | 19. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOPERLA | | 17.22 | 1.236 | 48. | 59. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 40.89 | 1.812 | 18. | 28. | |
| INSECTA | PLECOPTERA | PERLIDAE | CALINEURIA | | 51.65 | 1.713 | 24. | 41. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 34.43 | 1.537 | 8. | 9. | |
| INSECTA | TRICHOPTERA | | | | 27.98 | 1.447 | 72. | 104. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 355.08 | 2.550 | 108. | 275. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | CHEUMATOPSYCHE | | 131.27 | 2.118 | 108. | 229. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | | | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | NEOPHYLAX | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 40.89 | 1.812 | 24. | 39. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 40.89 | 1.812 | 18. | 29. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 51.65 | 1.713 | 24. | 41. | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | HYDROPTILA | | 34.43 | 1.537 | 108. | 166. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 4103.86 | 3.613 | 104. | 376. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | GOERA | | 6.46 | 0.810 | 72. | 58. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | NEOPHYLAX | | 23.67 | 1.374 | 24. | 33. | |
| INSECTA | DIPTERA | TIJULIDAE | ANTOCHA | | 234.57 | 2.370 | 24. | 57. | |
| INSECTA | DIPTERA | TIJULIDAE | HEXATOMA | MONTICOLA | 131.27 | 2.118 | 36. | 76. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 137.73 | 2.139 | 108. | 231. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 11403.45 | 4.057 | 108. | 438. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 34.43 | 1.537 | 95. | 146. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 68.86 | 1.838 | 108. | 199. | |
| INSECTA | DIPTERA | RHAGIONIDAE | ATHERIX | | 86.08 | 1.935 | 24. | 46. | |
| INSECTA | DIPTERA | PSYCHODIDAE | MARUINA | | 17.22 | 1.236 | 36. | 44. | |
| INSECTA | ODONATA | GOMPHIDAE | | | 17.22 | 1.236 | 108. | 133. | |
| CRUSTACEA | OSTRACODA | | | | 23.67 | 1.374 | 108. | 148. | |
| PELECYPODA | | | | | 23.67 | 1.374 | 108. | 148. | |
| OLIGOCHAETA | | | | | 206.59 | 2.315 | 108. | 250. | |
| ARACHNIDA | HYDRACARINA | | | | 1508.55 | 3.179 | 98. | 311. | |
| NEMATODA | | | | | 264.70 | 2.423 | 108. | 262. | |
| | | | | TOTALS | 22357.13 | 4.349 | | 2.90 | |

TOTAL SAMPLE STATISTICS

STATION: 9.3

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 09 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 39 | 10874. | 7733. | 14015. | 4582.02 | 18.84 | 42.14 | 2.9910 | 0.4346 | 58. | 60. |

SPECIES ANALYSES

STATION: 9.3

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 09 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|--------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 654.21 | 2.816 | 21. | 59. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 17.22 | 1.236 | 30. | 37. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | RHITHROGENA | | 25.82 | 1.412 | 21. | 30. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | COLORADENSIS | 58.10 | 1.764 | 18. | 32. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 312.04 | 2.494 | 48. | 120. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 51.85 | 1.713 | 2. | 3. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 49.50 | 1.695 | 24. | 41. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 163.55 | 2.214 | 24. | 53. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 204.44 | 2.311 | 48. | 111. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 522.94 | 2.718 | 72. | 196. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TERESA | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | PLECOPTERA | | | | 40.89 | 1.612 | 48. | 77. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | ZAPADA | | 60.26 | 1.780 | 24. | 43. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 8.61 | 0.935 | 16. | 15. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | MARUINA | | 77.47 | 1.889 | 6. | 11. | |
| INSECTA | DIPTERA | PSYCHODIDAE | HYDROPSYCHE | | 51.65 | 1.713 | 36. | 82. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | | | 36.58 | 1.563 | 108. | 169. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | | | 27.98 | 1.447 | 108. | 156. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | DICOSMOECUS | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 58.10 | 1.764 | 24. | 42. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 90.38 | 1.956 | 18. | 35. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | ECCLISOMYIA | | 4.30 | 0.834 | 24. | 15. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | NEOPHYLAX | | 25.82 | 1.412 | 24. | 34. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 1022.20 | 3.010 | 104. | 313. | |
| INSECTA | DIPTERA | | | | 43.04 | 1.634 | 108. | 178. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 170.01 | 2.230 | 24. | 54. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXTOMA | | 66.71 | 1.824 | 36. | 66. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 88.23 | 1.948 | 108. | 210. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 5474.69 | 3.738 | 108. | 404. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 12.91 | 1.111 | 95. | 106. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | GLUTOPS | ROSSI | 83.93 | 1.924 | 108. | 208. | |
| INSECTA | DIPTERA | PELECOPHYNCHIDAE | MARUINA | | 17.22 | 1.236 | 30. | 37. | |
| CRUSTACEA | COPEPODA | PSYCHODIDAE | | | 8.46 | 0.810 | 36. | 29. | |
| CRUSTACEA | OSTRACODA | | | | 23.67 | 1.374 | 108. | 148. | |
| TURBELLARIA | TRICLADIDA | PLANARIIDAE | PLANARIA | | 45.19 | 1.655 | 108. | 179. | |
| OLIGOCHAETA | | | | | 23.67 | 1.374 | 108. | 148. | |
| ARACHNIDA | HYDRACARINA | | | | 363.69 | 2.561 | 108. | 277. | |
| NEMATODA | | | | | 828.52 | 2.918 | 98. | 286. | |
| | | | | | 27.98 | 1.447 | 108. | 156. | |
| | | | | | | | | | 0.73 |
| | | | | TOTALS | 10874.06 | 4.036 | | | |

TOTAL SAMPLE STATISTICS

STATION: 12.1

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 09 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|------|----------------------|--------------|-----------------------------------|-------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * | NUMBERS DATA | | | | | | | | | | |
| 5 | 40 | 4980. | 4131. | 5828. | 1237.60 | 11.11 | 24.85 | 3.4873 | 0.3460 | 55. | 60. |

SPECIES ANALYSES

STATION: 12.1

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 09 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM | |
|-------------|---------------|-----------------|------------------|--------------|-------------|--------------|--------------------|------------|----------------|--|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 217.35 | 2.337 | 21. | 49. | | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 43.04 | 1.634 | 30. | 49. | | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | RHITHROGENA | | 30.13 | 1.479 | 21. | 31. | | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | COLORADENSIS | 8.61 | 0.935 | 18. | 17. | | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 12.91 | 1.111 | 48. | 53. | | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 86.08 | 1.935 | 2. | 4. | | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 55.95 | 1.748 | 24. | 42. | | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 243.18 | 2.386 | 24. | 57. | | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 34.43 | 1.537 | 48. | 74. | | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | S, O | 413.18 | 2.616 | 72. | 188. | | |
| INSECTA | PLECOPTERA | | | | 4.30 | 0.634 | 48. | 30. | | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | KOGOTUS | | 120.51 | 2.081 | 24. | 50. | | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOPERLA | | 4.30 | 0.634 | 18. | 11. | | |
| INSECTA | PLECOPTERA | PERLODIDAE | CULTUS | O | 10.76 | 1.032 | 48. | 50. | | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 4.30 | 0.634 | 12. | 8. | | |
| INSECTA | PLECOPTERA | PERLIDAE | HESPEROPERLA | PACIFICA | 4.30 | 0.634 | 16. | 10. | | |
| INSECTA | PLECOPTERA | NEMOURIDAE | MALENKA | S | 17.22 | 1.236 | 18. | 22. | | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 6.48 | 0.810 | 36. | 29. | | |
| INSECTA | PLECOPTERA | PELTOPERLIDAE | YORAPERLA | | 12.91 | 1.111 | 6. | 7. | | |
| INSECTA | PLECOPTERA | LEUCTRIDAE | VISOKA | | 8.46 | 0.810 | 24. | 19. | | |
| INSECTA | PLECOPTERA | NEMOURIDAE | HYDROPSYCHE | | 10.76 | 1.032 | 18. | 19. | | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | S | 25.82 | 1.412 | 108. | 152. | | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | GLYPHOPSYCHE | S | 94.69 | 1.976 | 108. | 213. | | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | S | 8.61 | 0.935 | 72. | 67. | | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 23.67 | 1.374 | 24. | 33. | | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | HYDROPTILA | | 27.98 | 1.447 | 18. | 26. | | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 4.30 | 0.634 | 108. | 68. | | |
| INSECTA | DIPTERA | | | | 337.86 | 2.529 | 104. | 263. | | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | | 4.30 | 0.634 | 108. | 68. | | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 60.26 | 1.780 | 24. | 43. | | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 23.67 | 1.374 | 108. | 148. | | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 1663.50 | 3.221 | 108. | 348. | | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | S, O | 12.91 | 1.111 | 95. | 108. | |
| INSECTA | DIPTERA | RHAGIONIDAE | ATHERIX | | S, O | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | DIPTERA | TIPULIDAE | | | S, O | 8.61 | 0.935 | 24. | 22. | |
| CRUSTACEA | OSTRACODA | | | | S | 8.61 | 0.935 | 72. | 67. | |
| OLIGOCHAETA | | | | | S | 213.05 | 2.328 | 108. | 251. | |
| ARACHNIDA | HYDRACARINA | | | | O, S | 322.80 | 2.509 | 108. | 271. | |
| NEMATODA | | | | | S, O | 761.81 | 2.882 | 98. | 282. | |
| | | | | | S | 12.91 | 1.111 | 108. | 120. | |
| | | | | | | | | | 0.47 | |
| | | | | | TOTALS | 4979.73 | 3.697 | | | |

TOTAL SAMPLE STATISTICS

STATION: 6.2

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 15 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 46 | 13112. | 10336. | 15888. | 4048.70 | 13.81 | 30.88 | 3.0849 | 0.4421 | 61. | 62. |

SPECIES ANALYSES

STATION: 6.2

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 15 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|--------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 466.98 | 2.669 | 21. | 58. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 60.26 | 1.780 | 30. | 53. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | COLORADENSIS | 73.17 | 1.864 | 18. | 34. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 94.69 | 1.976 | 48. | 95. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 241.02 | 2.382 | 24. | 57. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 51.65 | 1.713 | 24. | 41. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 34.43 | 1.537 | 48. | 74. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 2324.16 | 3.366 | 72. | 242. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TERESA | 180.77 | 2.257 | 24. | 54. | |
| INSECTA | PLECOPTERA | | | | 10.76 | 1.032 | 48. | 50. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | SKWALA | | 111.90 | 2.049 | 24. | 49. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOPERLA | PARALLELA | 34.43 | 1.537 | 18. | 28. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ZAPADA | | 68.86 | 1.838 | 48. | 88. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | HESPEROPERLA | PACIFICA | 135.58 | 2.132 | 16. | 34. | |
| INSECTA | PLECOPTERA | PERLIDAE | AMPHINEMURA | | 49.50 | 1.695 | 18. | 31. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | | | 17.22 | 1.236 | 6. | 7. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | TRICHOPTERA | | | | 17.22 | 1.236 | 72. | 89. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 241.02 | 2.382 | 108. | 257. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | CHEUMATOPSYCHE | | 197.98 | 2.297 | 108. | 248. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | ARCTOPSYCHE | | 6.46 | 0.810 | 18. | 15. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | HESPEROPHYLAX | | 58.10 | 1.764 | 108. | 191. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | AMIOCENTRUS | | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | RHYACOPHILA | | 27.98 | 1.447 | 24. | 35. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | GLOSSOSOMATIDAE | | 172.16 | 2.236 | 18. | 40. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 40.89 | 1.612 | 24. | 39. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | NEOPHYLAX | | 43.04 | 1.634 | 24. | 39. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 1351.46 | 3.131 | 104. | 326. | |
| INSECTA | ODONATA | GOMPHIDAE | | | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | ODONATA | GOMPHIDAE | OPHIOGOMPHUS | | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | DIPTERA | | | | 8.61 | 0.935 | 108. | 101. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 126.97 | 2.104 | 24. | 50. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXTATOMA | | 51.65 | 1.713 | 36. | 62. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 105.45 | 2.023 | 108. | 218. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 5846.98 | 3.767 | 108. | 407. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 43.04 | 1.634 | 95. | 155. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 25.82 | 1.412 | 108. | 152. | |
| INSECTA | DIPTERA | TABANIDAE | | | 8.61 | 0.935 | 108. | 101. | |
| INSECTA | DIPTERA | PELECORHYNCHIDAE | GLUTOPS | ROSSI | 17.22 | 1.236 | 30. | 37. | |
| INSECTA | DIPTERA | TIPULIDAE | | | 61.65 | 1.713 | 72. | 123. | |
| CRUSTACEA | OSTRACODA | | | | 17.22 | 1.236 | 108. | 133. | |
| PELCYPODA | | | | | 34.43 | 1.537 | 108. | 188. | |
| OLIGOCHAETA | | | | | 154.94 | 2.190 | 108. | 237. | |
| ARACHNIDA | HYDRACARINA | | | | 406.73 | 2.809 | 98. | 256. | |
| NEMATODA | | | | | 15.06 | 1.178 | 108. | 127. | |
| | | | | TOTALS | 13112.14 | 4.118 | | | 2.00 |

TOTAL SAMPLE STATISTICS

STATION: 9.3

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 15 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * | NUMBERS DATA | | | | | | | | | | |
| 5 | 34 | 14117. | 10912. | 17322. | 4674.95 | 14.81 | 33.12 | 2.8984 | 0.4310 | 53. | 57. |

SPECIES ANALYSES

STATION: 9.3

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 15 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|-----------------|------------------|--------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | | EPEORUS | | 17.22 | 1.236 | 64. | 79. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 593.95 | 2.774 | 21. | 58. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPHEMERELLA | COLORADENSIS | 34.43 | 1.537 | 30. | 46. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 111.90 | 2.049 | 18. | 37. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 68.86 | 1.838 | 48. | 88. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 146.34 | 2.165 | 2. | 4. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | | 197.98 | 2.297 | 24. | 55. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 180.77 | 2.257 | 24. | 54. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 77.47 | 1.889 | 48. | 91. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 860.80 | 2.935 | 72. | 211. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TERESA | 25.82 | 1.412 | 24. | 34. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 80.26 | 1.780 | 24. | 43. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOPERLA | | 8.61 | 0.935 | 48. | 45. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 68.86 | 1.838 | 16. | 29. | |
| INSECTA | PLECOPTERA | PERLIDAE | HESPEROPERLA | PACIFICA | 17.22 | 1.236 | 18. | 22. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 51.65 | 1.713 | 6. | 10. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 154.94 | 2.190 | 108. | 237. | |
| INSECTA | TRICHOPTERA | LIMNephILIDAE | NEOPHYLAX | | 94.89 | 1.976 | 24. | 47. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 258.24 | 2.412 | 24. | 58. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 17.22 | 1.236 | 18. | 22. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 1308.42 | 3.117 | 104. | 324. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 258.24 | 2.412 | 24. | 58. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXTATOMA | | 34.43 | 1.537 | 36. | 55. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 0 | 120.51 | 2.081 | 108. | 225. |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 5,0 | 7316.80 | 3.864 | 108. | 417. |
| INSECTA | DIPTERA | EMPIDIDAE | | | 5 | 25.82 | 1.412 | 95. | 134. |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 5, CH | 146.34 | 2.165 | 108. | 234. |
| INSECTA | DIPTERA | RHAGIONIDAE | ATHERIX | | 5, CH | 17.22 | 1.236 | 24. | 30. |
| INSECTA | DIPTERA | TIPULIDAE | | | 5, CH | 439.01 | 2.642 | 72. | 190. |
| INSECTA | DIPTERA | PSYCHODIDAE | MARUINA | | 5, CH | 60.26 | 1.780 | 36. | 64. |
| CRUSTACEA | OSTRACODA | | | | 5 | 34.43 | 1.537 | 108. | 168. |
| TURBELLARIA | TRICLADIDA | PLANARIIDAE | PLANARIA | | 0 | 17.22 | 1.236 | 108. | 133. |
| OLIGOCHAETA | | | | | 0, S | 180.77 | 2.257 | 108. | 244. |
| ARACHNIDA | HYDRACARINA | | | | 5, 0 | 1110.43 | 3.045 | 98. | 298. |
| TOTALS | | | | | 14117.12 | 4.150 | | | 1.30 |

TOTAL SAMPLE STATISTICS

STATION: 12.1

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 15 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 39 | 7706. | 2987. | 12426. | 6883.61 | 39.95 | 89.32 | 3.3171 | 0.3740 | 56. | 61. |

SPECIES ANALYSES

STATION: 12.1

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 06 15 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|-----------------|------------------|--------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 305.58 | 2.485 | 21. | 52. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 17.22 | 1.236 | 30. | 37. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | COLORADENSIS | 30.13 | 1.479 | 18. | 27. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 17.22 | 1.236 | *48. | 59. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 47.34 | 1.875 | 2. | 3. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 62.41 | 1.795 | 24. | 43. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 411.03 | 2.814 | 24. | 63. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 51.85 | 1.713 | 48. | 82. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 251.78 | 2.401 | 72. | 173. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TERESA | 4.30 | 0.834 | 24. | 15. | |
| INSECTA | PLECOPTERA | | | | 4.30 | 0.834 | 48. | 30. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 167.86 | 2.225 | 24. | 53. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOPERLA | | 17.22 | 1.236 | 48. | 59. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 17.22 | 1.236 | 16. | 20. | |
| INSECTA | PLECOPTERA | PERLIDAE | HESPEROPERLA | PACIFICA | 21.52 | 1.333 | 18. | 24. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 12.91 | 1.111 | 6. | 7. | |
| INSECTA | PLECOPTERA | LEUCTRIDAE | | | 4.30 | 0.834 | 18. | 11. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | VISOKA | | 107.60 | 2.032 | 108. | 219. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 4.30 | 0.834 | 24. | 15. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 277.61 | 2.443 | 108. | 264. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | | | 12.91 | 1.111 | 108. | 120. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 45.19 | 1.855 | 24. | 40. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 90.38 | 1.958 | 18. | 35. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 34.43 | 1.537 | 24. | 37. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 587.50 | 2.769 | 104. | 288. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 157.10 | 2.196 | 24. | 53. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXATOMA | | 17.22 | 1.236 | 36. | 44. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 60.26 | 1.780 | 108. | 192. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 2997.74 | 3.477 | 108. | 375. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 8.61 | 0.935 | 95. | 89. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 12.91 | 1.111 | 108. | 120. | |
| INSECTA | DIPTERA | RHAGONIIDAE | ATHERIX | | 4.30 | 0.834 | 24. | 15. | |
| INSECTA | DIPTERA | PSYCHODIDAE | MARUINA | | 17.22 | 1.236 | 36. | 44. | |
| CRUSTACEA | OSTRACODA | | | | 578.89 | 2.763 | 108. | 298. | |
| PELECYPODA | | | | | 17.22 | 1.236 | 108. | 133. | |
| TURBELLARIA | TRICLADIDA | PLANARIIDAE | PLANARIA | | 34.43 | 1.537 | 108. | 168. | |
| OLIGOCHAETA | | | | | 96.84 | 1.986 | 108. | 214. | |
| ARACHNIDA | HYDRACARINA | | | | 1095.37 | 3.040 | 98. | 298. | |
| NEMATODA | | | | | 4.30 | 0.834 | 108. | 68. | |
| | | | | | TOTALS | 7706.31 | 3.887 | | 1.00 |

TOTAL SAMPLE STATISTICS

STATION: 6,6

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 07 14 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 43 | 17887. | 14573. | 21202. | 4834.83 | 12.09 | 27.03 | 2.9510 | 0.4570 | 59. | 61. |

SPECIES ANALYSES

STATION: 6.0

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 07 14 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|-----------------|------------------|-----------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 180.77 | 2.257 | 21. | 47. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 671.42 | 2.827 | 30. | 85. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | HEPTAGENIA | S | 34.43 | 1.537 | 54. | 83. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 189.38 | 2.277 | 48. | 109. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 17.22 | 1.236 | 2. | 2. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 34.43 | 1.537 | 24. | 37. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 206.59 | 2.315 | 24. | 56. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 17.22 | 1.236 | 48. | 59. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | S | 834.98 | 2.922 | 72. | 210. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | HECUBA | 25.82 | 1.412 | 48. | 68. | |
| INSECTA | PLECOPTERA | | | | 34.43 | 1.537 | 48. | 74. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | ISOPERLA | | 163.55 | 2.214 | 24. | 53. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ZAPADA | | 86.08 | 1.935 | 48. | 93. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 439.01 | 2.842 | 16. | 42. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | | | 137.73 | 2.139 | 6. | 13. | |
| INSECTA | PLECOPTERA | LEUCTRIDAE | | | 17.22 | 1.236 | 18. | 22. | |
| INSECTA | PLECOPTERA | PERLODIDAE | PERLINODES | | 94.69 | 1.978 | 48. | 95. | |
| INSECTA | PLECOPTERA | PERLODIDAE | | | 34.43 | 1.537 | 48. | 74. | |
| INSECTA | PLECOPTERA | PERLIDAЕ | | | 34.43 | 1.537 | 24. | 37. | |
| INSECTA | TRICHOPTERA | | | | 17.22 | 1.236 | 72. | 89. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | S | 25.82 | 1.412 | 108. | 152. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | CHEUMATOPSYCHE | S | 103.30 | 2.014 | 108. | 218. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | HESPEROPHYLAX | S | 34.43 | 1.537 | 108. | 168. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | DICOSMOECUS | | 34.43 | 1.537 | 24. | 37. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 120.51 | 2.081 | 18. | 37. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | S | 43.04 | 1.834 | 24. | 39. | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | HYDROPTILA | S | 68.86 | 1.838 | 108. | 199. | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | AGRYLEA | S | 68.86 | 1.838 | 108. | 199. | |
| INSECTA | COLEOPTERA | ELMIDAE | | MONTICOLA | 4487.55 | 3.850 | 104. | 380. | |
| INSECTA | COLEOPTERA | DYTISCIDAE | | | 17.22 | 1.236 | 72. | 89. | |
| INSECTA | DIPTERA | | | | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | | 232.42 | 2.366 | 24. | 57. | |
| INSECTA | DIPTERA | TIPULIDAE | DICRANOTA | S | [8.61] | 0.935 | 24. | 22. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXTATOMA | S | 8.61 | 0.935 | 36. | 34. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 7325.41 | 3.865 | 108. | 417. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 43.04 | 1.834 | 108. | 176. | |
| INSECTA | DIPTERA | RHAGIONIDAE | ATHERIX | S, ch | 25.82 | 1.412 | 24. | 34. | |
| INSECTA | DIPTERA | TIPULIDAE | | S, ch | 34.43 | 1.537 | 72. | 111. | |
| CRUSTACEA | OSTRACODA | | | S | 17.22 | 1.236 | 108. | 133. | |
| OLIGOCHAETA | | | | O, S | 439.01 | 2.842 | 108. | 285. | |
| ARACHNIDA | HYDRACARINA | | | S, C | 1342.85 | 3.128 | 98. | 307. | |
| NEMATODA | | | | S | 120.51 | 2.081 | 108. | 225. | |
| | | | | | TOTALS | 17887.42 | 4.253 | | 2.60 |

TOTAL SAMPLE STATISTICS

STATION: 9.3

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 07 14 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 42 | 24374. | 22013. | 26734. | 3443.49 | 6.32 | 14.13 | 3.0690 | 0.4313 | 51. | 58. |

SPECIES ANALYSES

STATION: 9.3

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 07 14 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|-----------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 68.86 | 1.838 | 21. | 39. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 86.08 | 1.935 | 30. | 58. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | RHITHROGENA | | 51.65 | 1.713 | 21. | 36. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | HEPTAGENIA | | 111.90 | 2.049 | 54. | 111. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 51.65 | 1.713 | 48. | 82. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 77.47 | 1.889 | 2. | 4. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 51.65 | 1.713 | 24. | 41. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | SPINIFERA | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 533.70 | 2.727 | 24. | 65. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 163.55 | 2.214 | 48. | 106. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 2913.81 | 3.464 | 72. | 249. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | HECUBA | 292.67 | 2.466 | 48. | 118. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DEALNTALA | 25.82 | 1.412 | 24. | 34. | |
| INSECTA | PLECOPTERA | | | | 215.20 | 2.333 | 48. | 112. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 275.46 | 2.440 | 24. | 59. | |
| INSECTA | PLECOPTERA | PERLODIDAE | MEGARCYS | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOPERLA | | 172.18 | 2.236 | 48. | 107. | |
| INSECTA | PLECOPTERA | PERLODIDAE | CULTUS | | 17.22 | 1.236 | 12. | 15. | |
| INSECTA | PLECOPTERA | PTERONARCYIDAE | PTERONARCELLA | BADIA | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 1007.14 | 3.003 | 16. | 48. | |
| INSECTA | PLECOPTERA | PERLIDAE | HESPEROPERLA | PACIFICA | 51.65 | 1.713 | 18. | 31. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 43.04 | 1.634 | 6. | 10. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 88.86 | 1.838 | 24. | 44. | |
| INSECTA | TRICHOPTERA | LIMNephILIDAE | NEOPHYLAX | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHLA | | 34.43 | 1.537 | 18. | 28. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 34.43 | 1.537 | 24. | 37. | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | HYDROPTILA | | 94.89 | 1.976 | 108. | 213. | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | AGRAYLEA | | 43.04 | 1.634 | 108. | 178. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 4088.80 | 3.612 | 104. | 378. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 154.94 | 2.190 | 24. | 53. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXATOMA | | 68.86 | 1.838 | 36. | 66. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 43.04 | 1.634 | 108. | 176. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 9085.74 | 3.958 | 108. | 428. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 17.22 | 1.236 | 96. | 117. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 137.73 | 2.139 | 108. | 231. | |
| INSECTA | DIPTERA | TIPULIDAE | | | 137.73 | 2.139 | 72. | 154. | |
| INSECTA | DIPTERA | PELECORHYNCHIDAE | GLUTOPS | ROSSI | 25.82 | 1.412 | 30. | 42. | |
| CRUSTACEA | OSTRACODA | | | | 43.04 | 1.634 | 108. | 176. | |
| OLIGOCHAETA | | | | | 275.46 | 2.440 | 108. | 264. | |
| ARACHNIDA | HYDRACARINA | | | | 3395.86 | 3.531 | 98. | 346. | |
| NEMATODA | | | | | 292.67 | 2.466 | 108. | 266. | |
| INSECTA | COLEOPTERA | CARABIDAE | | | 60.26 | 1.780 | 0. | 0. | |
| | | | | TOTALS | 24373.55 | 4.387 | | 3.60 | |

TOTAL SAMPLE STATISTICS

STATION: 12.1

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 07 14 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 41 | 24055. | 15826. | 32285. | 12003.71 | 22.32 | 49.90 | 3.3583 | 0.3736 | 61. | 61. |

SPECIES ANALYSES

STATION: 12.1

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 07 14 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|-----------------|------------------|------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 249.63 | 2.397 | 21. | 50. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 723.07 | 2.859 | 30. | 86. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | RHITHROGENA | | 23.67 | 1.374 | 21. | 29. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 60.26 | 1.780 | 48. | 85. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 370.14 | 2.568 | 2. | 5. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 83.93 | 1.924 | 24. | 46. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 443.31 | 2.647 | 24. | 64. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 68.86 | 1.838 | 48. | 88. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 4316.91 | 3.635 | 72. | 262. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DEALANTALA | 34.43 | 1.537 | 24. | 37. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TERESA | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | PLECOPTERA | | | | 344.32 | 2.537 | 48. | 122. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 819.91 | 2.914 | 24. | 70. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOPERLA | | 86.08 | 1.935 | 48. | 93. | |
| INSECTA | PLECOPTERA | PERLODIDAE | CULTUS | | 34.43 | 1.537 | 12. | 18. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 1032.96 | 3.014 | 16. | 48. | |
| INSECTA | PLECOPTERA | PERLIDAE | HESPEROPERLA | PACIFICA | 725.82 | 1.412 | 18. | 25. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 79.82 | 1.901 | 6. | 11. | |
| INSECTA | PLECOPTERA | LEUCTRIDAE | | | 38.74 | 1.588 | 18. | 29. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | VISOKA | | 51.65 | 1.713 | 108. | 185. | |
| INSECTA | TRICHOPTERA | | | | 34.43 | 1.537 | 72. | 111. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 86.08 | 1.935 | 108. | 209. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | | | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 32.28 | 1.509 | 24. | 36. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 137.73 | 2.139 | 18. | 39. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 43.04 | 1.634 | 24. | 39. | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | HYDROPTILA | | 8.46 | 0.810 | 108. | 87. | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | ALISOTRICHIA | | 62.41 | 1.795 | 108. | 194. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 2507.08 | 3.399 | 104. | 354. | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | AGRYLEA | | 34.43 | 1.537 | 108. | 166. | |
| INSECTA | ODONATA | | | | 8.46 | 0.810 | 90. | 73. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 128.97 | 2.104 | 24. | 50. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 421.79 | 2.625 | 108. | 284. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 7833.28 | 3.894 | 108. | 421. | |
| INSECTA | DIPTERA | EMPIDIIDAE | | | 17.22 | 1.236 | 95. | 117. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 51.65 | 1.713 | 108. | 185. | |
| INSECTA | DIPTERA | DIXIDAE | | | 51.65 | 1.713 | 108. | 185. | |
| CRUSTACEA | OSTRACODA | | | | 1039.42 | 3.017 | 108. | 326. | |
| TURBELLARIA | TRICLADIDA | PLANARIIDAE | PLANARIA | | 17.22 | 1.236 | 108. | 133. | |
| OLIGOCHAETA | | | | | 292.87 | 2.486 | 108. | 268. | |
| ARACHNIDA | HYDRACARINA | | | | 2330.82 | 3.387 | 98. | 330. | |
| | | | | TOTALS | 24055.06 | 4.381 | | | 2.20 |

TOTAL SAMPLE STATISTICS

STATION: 6.2

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 09 19 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 45 | 29517. | 24304. | 34730. | 7604.23 | 11.52 | 25.78 | 3.7580 | 0.3160 | 59. | 60. |

SPECIES ANALYSES

STATION: 6.2

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 09 19 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|-----------|-------------|--------------|--------------------|------------|----------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 4252.35 | 3.629 | 21. | 76. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 361.54 | 2.558 | 30. | 77. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | RHITHROGENA | | 1471.97 | 3.168 | 21. | 67. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 3667.01 | 3.564 | 48. | 171. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODSSI | 17.22 | 1.236 | 2. | 2. | |
| INSECTA | EPHEMEROPTERA | TRICORYTHIDAE | TRICORYTHODES | MINUTUS | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | EPHEMEROPTERA | LETOPHLEBIIDAE | PARALEPTOPHLEBIA | | 344.32 | 2.537 | 24. | 61. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 34.43 | 1.537 | 48. | 74. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 3030.02 | 3.481 | 72. | 251. | |
| INSECTA | PLECOPTERA | PERLOLIDAE | ISOGENOIDES | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 223.81 | 2.350 | 24. | 56. | |
| INSECTA | PLECOPTERA | PERLOLIDAE | SKWALA | PARALLELA | 51.65 | 1.713 | 18. | 31. | |
| INSECTA | PLECOPTERA | PERLOLIDAE | ISOPERLA | | 103.30 | 2.014 | 48. | 97. | |
| INSECTA | PLECOPTERA | PERLOLIDAE | CULTUS | | 51.65 | 1.713 | 12. | 21. | |
| INSECTA | PLECOPTERA | TAENIOPTERYGIDAE | TAENIONEMA | | 120.51 | 2.081 | 48. | 100. | |
| INSECTA | PLECOPTERA | PTERONARCYIDAE | PTERONARCELLA | BADIA | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | PLECOPTERA | CAPNIIDAE | HESPEROPERLA | PACIFICA | 103.30 | 2.014 | 32. | 64. | |
| INSECTA | PLECOPTERA | PERLIDAE | AMPHINEMURA | | 17.22 | 1.236 | 18. | 22. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | PERLINODES | | 588.13 | 2.754 | 6. | 17. | |
| INSECTA | PLECOPTERA | PERLOLIDAE | CLAASSENIA | SABULOSA | 51.65 | 1.713 | 48. | 82. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 51.65 | 1.713 | 6. | 10. | |
| INSECTA | TRICHOPTERA | | | | 88.08 | 1.935 | 24. | 46. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 103.30 | 2.014 | 72. | 145. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | CHEUMATOPSYCHE | | 1773.25 | 3.249 | 108. | 351. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | GOERA | | 929.68 | 2.968 | 108. | 321. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 17.22 | 1.236 | 72. | 89. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 51.65 | 1.713 | 18. | 31. | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | ALISOTRICHIA | | 120.51 | 2.081 | 24. | 50. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | ODONATA | COENAGRIONIDAE | | | 5250.88 | 3.720 | 104. | 387. | |
| INSECTA | DIPTERA | | | | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXATOMA | | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 86.08 | 1.935 | 36. | 70. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 292.67 | 2.468 | 108. | 266. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 3425.98 | 3.535 | 108. | 382. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 34.43 | 1.537 | 95. | 146. | |
| INSECTA | DIPTERA | RHAGIONIDAE | ATHERIX | | 137.73 | 2.139 | 108. | 231. | |
| INSECTA | DIPTERA | TIPULIDAE | | | 137.73 | 2.139 | 24. | 51. | |
| CRUSTACEA | COPEPODA | | | | 17.22 | 1.236 | 72. | 89. | |
| CRUSTACEA | OSTRACODA | | | | 17.22 | 1.236 | 108. | 133. | |
| OLIGOCHAETA | | | | | 34.43 | 1.537 | 108. | 168. | |
| ARACHNIDA | HYDRACARINA | | | | 1411.71 | 3.150 | 108. | 340. | |
| NEMATODA | | | | | 878.02 | 2.944 | 98. | 288. | |
| | | | | | 68.88 | 1.838 | 108. | 199. | |

TOTALS

29516.84 4,470

3,20

TOTAL SAMPLE STATISTICS

STATION: 9.3

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 09 09 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 39 | 18912. | 10258. | 27565. | 12622.19 | 29.85 | 68.74 | 3.3132 | 0.3736 | 59. | 59. |

SPECIES ANALYSES

STATION: 9.3

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 09 09 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|-----------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 258.24 | 2.412 | 21. | 51. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 1299.81 | 3.114 | 30. | 93. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | HEPTAGENIA | | 8.61 | 0.935 | 54. | 50. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 989.92 | 2.996 | 48. | 144. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 137.73 | 2.139 | 2. | 4. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 34.43 | 1.537 | 24. | 37. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | SPINIFERA | 51.65 | 1.713 | 24. | 41. | |
| INSECTA | EPHEMEROPTERA | TRICORYTHIDAE | TRICORYTHODES | MINUTUS | 8.61 | 0.935 | 108. | 101. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 731.68 | 2.864 | 24. | 69. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 17.22 | 1.236 | 48. | 59. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 645.60 | 2.810 | 72. | 202. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | SKWALA | PARALLELA | 370.14 | 2.568 | 24. | 62. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOPERLA | | 86.08 | 1.935 | 18. | 35. | |
| INSECTA | PLECOPTERA | PERLODIDAE | CULTUS | | 68.86 | 1.838 | 48. | 88. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 17.22 | 1.238 | 12. | 15. | |
| INSECTA | PLECOPTERA | PERLIDAE | CALINEURIA | | 34.43 | 1.537 | 18. | 25. | |
| INSECTA | PLECOPTERA | PERLIDAE | HESPEROPERA | PACIFICA | 34.43 | 1.537 | 24. | 37. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | MALENKA | | 17.22 | 1.238 | 18. | 22. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 206.59 | 2.315 | 36. | 83. | |
| INSECTA | PLECOPTERA | PERLODIDAE | PERLINODES | | 206.59 | 2.315 | 6. | 14. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 43.04 | 1.634 | 48. | 78. | |
| INSECTA | TRICHOPTERA | PSYCHOMYIDAE | POLYCENTROPUS | | 585.34 | 2.767 | 108. | 299. | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | HYDROPTILA | | 6.48 | 0.810 | 108. | 87. | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | ALISOTRICHIA | | 8.61 | 0.935 | 108. | 101. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 34.43 | 1.537 | 108. | 166. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 4002.72 | 3.602 | 104. | 375. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXATOMA | | 77.47 | 1.889 | 24. | 45. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 120.51 | 2.081 | 36. | 75. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 34.43 | 1.537 | 108. | 166. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 5332.66 | 3.727 | 108. | 403. | |
| INSECTA | DIPTERA | PSYCHODIDAE | PERICOMA | | 241.02 | 2.382 | 108. | 257. | |
| INSECTA | DIPTERA | PELECORHYNCHIDAE | GLUTOPS | ROSSI | 103.30 | 2.014 | 36. | 73. | |
| INSECTA | DIPTERA | TIPULIDAE | | | 17.22 | 1.236 | 30. | 37. | |
| CRUSTACEA | COPEPODA | | | | 15.06 | 1.178 | 72. | 85. | |
| CRUSTACEA | OSTRACODA | | | | 17.22 | 1.236 | 108. | 133. | |
| OLIGOCHAETA | | | | | 51.65 | 1.713 | 108. | 185. | |
| ARACHNIDA | HYDRACARINA | | | | 51.65 | 1.713 | 108. | 185. | |
| NEMATODA | | | | | 2909.50 | 3.464 | 98. | 339. | |
| | | | | | 34.43 | 1.537 | 108. | 166. | |
| | | | | | | | | | 1.80 |
| | | | | TOTALS | 18911.78 | 4.277 | | | |

TOTAL SAMPLE STATISTICS

STATION: 12.1

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 09 09 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 41 | 15748. | 10243. | 21254. | 8030.28 | 22.80 | 50.99 | 3.4827 | 0.3505 | 55. | 59. |

SPECIES ANALYSES

STATION: 12.1

BADGER CREEK, MT HOOD NATIONAL FOREST

DATE: 09 09 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|-----------|-------------|--------------|--------------------|------------|----------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 189.38 | 2.277 | 21. | 48. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 1897.93 | 3.230 | 30. | 97. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 182.92 | 2.262 | 48. | 109. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODSSI | 19.37 | 1.287 | 2. | 3. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | SPINIFERA | 4.30 | 0.834 | 24. | 15. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 247.48 | 2.394 | 24. | 57. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 40.89 | 1.612 | 48. | 77. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 180.77 | 2.257 | 72. | 163. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | MARGARITA | 81.78 | 1.913 | 24. | 46. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | HECUBA | 2.15 | 0.333 | 48. | 16. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | SKWALA | PARALLELA | 518.63 | 2.715 | 24. | 65. | |
| INSECTA | PLECOPTERA | PERLODIDAE | MEGARCYS | | 318.34 | 2.500 | 18. | 45. | |
| INSECTA | PLECOPTERA | PERLODIDAE | CULTUS | | 51.65 | 1.713 | 24. | 41. | |
| INSECTA | PLECOPTERA | CAPNIIDAE | ZAPADA | | 2.15 | 0.333 | 12. | 4. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | MALENKA | | 17.22 | 1.236 | 32. | 40. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 68.86 | 1.838 | 16. | 29. | |
| INSECTA | PLECOPTERA | PERLODIDAE | PERLINODES | | 30.13 | 1.479 | 36. | 53. | |
| INSECTA | TRICHOPTERA | PSYCHOMYIDAE | PSYCHOMYIA | | 223.81 | 2.350 | 6. | 14. | |
| INSECTA | TRICHOPTERA | PSYCHOMYIDAE | POLYCENTROPUS | | 17.22 | 1.236 | 48. | 59. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 36.58 | 1.583 | 108. | 169. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 34.43 | 1.537 | 108. | 166. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | TRICHOPTERA | LEPIDOSTOMATIDAE | | | 64.56 | 1.810 | 18. | 33. | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | HYDROPTILA | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | ALISOTRICHIA | | 30.13 | 1.479 | 18. | 27. | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | | | 36.58 | 1.583 | 108. | 169. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 191.53 | 2.282 | 108. | 246. | |
| INSECTA | DIPTERA | | | | 2083.14 | 3.319 | 104. | 345. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 8.61 | 0.935 | 108. | 101. | |
| INSECTA | DIPTERA | TIPULIDAE | DICRANOTA | | 148.34 | 2.165 | 24. | 52. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXATOMA | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 6.46 | 0.810 | 36. | 29. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 4960.38 | 3.898 | 108. | 399. | |
| INSECTA | DIPTERA | PSYCHODIDAE | PERICOMA | | 348.62 | 2.542 | 108. | 275. | |
| INSECTA | DIPTERA | TABANIDAE | | | 613.32 | 2.788 | 36. | 100. | |
| CRUSTACEA | DECAPODA | (cray fish) | | | 17.22 | 1.236 | 108. | 133. | |
| CRUSTACEA | COPEPODA | | | | 17.22 | 1.236 | 108. | 133. | |
| CRUSTACEA | OSTRACODA | | | | 17.22 | 1.236 | 108. | 133. | |
| OLIGOCHAETA | | | | | 301.28 | 2.479 | 108. | 268. | |
| ARACHNIDA | HYDRACARINA | | | | 1093.22 | 3.039 | 108. | 328. | |
| | | | | | 1798.92 | 3.255 | 98. | 319. | |
| | | | | | TOTALS | 15748.34 | 4.197 | | 2.80 |

TYGH CREEK

Three stations were established on this stream based upon the miles above the mouth of the stream. The Lower Station was 3.3, Middle Station (8.4) was within the spray zone and the Control Station (9.6) was above the spray zone. Analysis elements for the three stations will be discussed individually.

At Station 3.3 the number of taxa observed in the community on June 7 before the spray project was 43. The day of the project this number was 44 and the number of taxa was reduced to 38 by the day after the spray project. This drop in the number of species was due mainly to a change in the mayfly population, which group rebounded with even more taxa by June 15 when there were 42 taxa in the community, almost the same as found before the spray project. This was maintained through the July sampling date and by September that number was up to 50 taxa which is excellent diversity in a community.

The BCI values did not show much change in the tolerance of the community on the dates sampled. On June 7, 8, 9 and 15 the BCI values were 85, 82, 81, and 86 respectively. In July the BCI was 83 and by September it was 93, which was better than found before the spray project.

The macroinvertebrate standing crop was a little lower than one would expect in a stream with 30 mg/l alkalinity. Before the spray project it was 0.7 g/m^2 , the day of the spray project the biomass was 1.2 g/m^2 but that included a crayfish which increased this weight by 0.3 g/m^2 . Without the crayfish it would have been 0.9 g/m^2 . By the day after the spray project the biomass was the same as found in the sample taken before the spray project. By June 15 it was 0.6 g/m^2 which was just about the same. It remained at 0.7 g/m^2 in July and by September had increased to 1.6 g/m^2 , which is good for a stream with 30 mg/l alkalinity.

The DAT Diversity Index value was 20.1 on June 7 and remained in the excellent range, over 18, except for the July sampling date when it was in the upper good range. The number of organisms/ m^2 showed the normal population fluctuations of a community with amplification of numbers in the mid summer and fall samples. Ordinarily a community is considered healthy if there are at least 2,000 organisms/ m^2 and this was exceeded by communities at each of the stations on each of the sampling dates.

Clean water species present on each of the sampling dates indicated good water quality and good instream substrate. Moderate amounts of sedimentation were indicated on the June 7, July 8 and September 19 sampling dates and there appeared to be a fairly good source of nutrients on most of the sampling dates. The observed number of shredders in the community is generally found where riparian habitat is in good condition.

Table 13 shows the percentage of each trophic group found in the community on each of the sampling dates at Station 3.3 and Table 16 shows the occurrence of each of the species found at Station 3.3 on the dates sampled during the monitored period.

Only three of the mayfly species may have been affected by the spray project as observed in Table 16. *Rhithrogena*, with a spring/summer emergence period, disappeared after the June 7 sampling date but reappeared by September 19. Although it did reappear in September, *Rhithrogena* was found on more sample dates at the Control Station which may indicate some influence from the B-t spray at Station 3.3. *Ephemergella tibialis* disappeared after June 15. It has a summer emergence period and this pattern found at Station 3.3 was also observed to be about the same at the Control Station (9.6). *Ephemergella teresa*, with a summer emergence period, was missing from the samples June 8, 9, July 7 and September 19.

*Same as
Control*

The mayflies found on each of the sampling dates which did not appear to be affected by the spray project included two of the more sensitive mayfly species *Epeorus* and *Ephemergella doddsii*, and other mayflies *Ginggula*, *Paleopterophlebia*, *Ameletus* and *Baetis*.

Of the stoneflies there were 7 species that may have been affected by the spray project. Although *Hesperoperla pacifica* was not present on the prespray sample June 7 date, it was found June 8, 9 and 15, missing in July and reappeared in September. It has a spring and summer emergence pattern, however *Hesperoperla* is a biennial species so it generally has two generations in the stream at one time. Its presence on the September sampling date indicates it was not eliminated by the spray project.

The stonefly ~~Kogotus~~ was found in June 7 and 8 samples and was missing in the samples thereafter. It did not appear in September samples and thus may have been affected by the spray project. Members of the family Capniidae were found in the June 7 and July 7 samples and in the September samples. Although it was missing from some of the samples, its pattern of occurrence was basically the same as found at the Control Station (9.6). Its emergence time varies, it could happen any of the quarters of the year. Members of the family Leuctridae was missing on some of the sampling dates but was also present in the September samples. ~~Isonychia~~ was present on June 7 and 9 but missing from all other sampling dates. This species had become reestablished by September at the Control Station but did not show up at Station 3.3 in September. ~~Galeatus~~ was found only on the June 15 sampling date. It has a spring and summer emergence time and the pattern observed at Station 3.3 was the same as that at the Control Station (9.6). ~~Taenionema~~ was found only in the September samples and this was true also at the Control Station.

Those species that appeared unaffected by the spray project and found on each of the sampling dates were members of the family Chloroperlidae and the genera ~~Zapada~~ and ~~Amphineurus~~. Caddisflies appeared to be affected very little by the spray project. Some occurred periodically, but those that were found in the prespray samples were also found throughout the monitored period, such as ~~Hydropsyche~~, ~~Glossosoma~~ and ~~Rhyacophilida~~. The dipterans did not appear to be affected by the spray project and most were found on each of the sampling dates. ~~Anatogea~~ did disappear on the June 15 and July 7 sampling dates but reappeared in September and thus was not permanently displaced by the spray project.

Other species, such as those in the order Odonata and Decapoda are generally collected periodically, therefore one would not expect to find those in every sample. Another species that may have been affected however, was the flatworm, Planaria, which was present on June 7 and missing on the rest of the June sampling dates and also on the September sampling date.

In Table 13 one can observe the percentage of the community each of the trophic groups represents at Station 3.3 over the monitored time period. On the June and July sampling dates there appeared to be a good balance among the trophic groups. However in September, the percentage of species in each of these groups was not entirely as expected. There was, for instance, a decrease in the number of species representing the

collector/gatherers, they decreased from 50 to 36 percent from July to September. The number of scrapers was about the same as found at the Control Station and was about what one would expect. There was a porportionate increase in the number of predators at this station for some reason, and thus more predators than one would expect in a community. And there was the expected increase in the number of shredder species for fall samples. These species get their nutrients from leaves that fall into the stream. Overall, Station 3.3 did not appear to have any severe impacts. There may have been moderate effects from the spray project, but they were observed for few if any species within the community.

Station 8.4. was within the spray zone. Clean water species on each of the sampling dates indicated good water quality and good instream substrate in the stream reach. It appeared there was a minimal amount of sediment and organic enrichment impacts. It appeared there may be some sediment impacts, possibly from roads in the area. This was particularly noticeable in the early June samples, and in July, with little indication in September. The observed number of shredders in the community is generally found where riparian habitat is in good condition.

The number of taxa found at Station 8.4 on the June 7 sampling date, before the spray project, was 44. The day of the spray project the number of taxa was reduced to 37, and the decrease was mainly in the mayfly and caddisfly groups. The stoneflies appeared to be affected very little, if any, at this station. The day after the spray the number of taxa at this station was 45, one more than found on June 7. On June 15 the number of taxa was up to 51, by July this was reduced to 40 and in September was exactly the same as found on the day before the spray project.

The BCI values never did show a more tolerant community at this station. One June 7 the BCI was 86. The day of the spray project the BCI value was 88 as it was the day after the spray project. It then climbed by June 15 to 93, July 7 it was 91 and in September 94, indicating this aquatic ecosystem was fairly close to its potential.

The macroinvertebrate standing crop remained stable throughout the monitored period except for the September sampling date. On most dates the biomass was 1.1 g/m^2 which is about what one would expect in a stream with 30-35 mg/l alkalinity. In September this fell to 0.5 g/m^2 which was lower than one would expect in such a stream. This seemed to be due

partly to a reduction of nutrients in the system which was indicated by the low number of scrapers, those that feed on algae, in the July and September samples.

The DAT Diversity Index value was 20.2 and was thus in the excellent range on June 7, the day before the spray project. It remained in the excellent range, 18.7, on June 8, increased to 23.4 by the day after the spray (June 9) and remained in the excellent range on the other sampling dates. The number of organisms/m² was over 7,000 on June 7. It jumped to 14,000 June 8, back to 8,000 on June 9, and just under 8,000 on June 15 and had an expected increase in September samples. This analysis element did not show any negative effects on the community.

In Table 17 one can observe the occurrence of specific taxa over the monitored period at Station 8.4. In the mayfly order *Rhithrogena* disappeared after June 9 as was observed at Station 3.3, and did not reappear in September, thus may have been affected by the spray project. This species does have a spring and summer emergence period. *Ephemerella coloradensis* was found only on June 7 and July 7, it was absent from other sampling dates and may also have been affected by the spray project. However, it has a summer/fall emergence pattern. *Ephemerella spinifera* was found on June 7 and 15 and was absent from other sampling dates. It did not reappear in September and may also have been affected by the spray project. *Ephemerella margarita* was not found in the samples until June 15 and was also in the September samples, thus was not severely effected. not in control

Species which did not appear to be affected by the spray project and which were found on each of the sampling dates were *Epeorus*, *Cinygmulia*, *Ephemerella anomia*, *Ephemerella doddsi*, *Ephemerella tibialis*, *Paraleptophlebia*, *Ameletus* and *Baetis*. These species have varying trophic habits.

Of the stoneflies, the large stonefly *Pteronarcys californica* was found only in the June 8 samples and was missing from all other sample dates. It may have been affected by the spray project. *Gulfus*, which was found on the June 7 sampling date, was missing from the other June sampling dates, but reappeared on July 7 and was present in the September sample. This species may have been influenced somewhat but was able to maintain its population.

Katogonus which was not found on the June 7 sampling date, was found on the other June dates but was missing from July and September samples. It does have an emergence pattern in the summer which may explain its absence during that period of

time. The large stonefly *Glaassenia* was found June 8, 9 and July 7 and was missing from the other dates sampled. It has a summer emergence pattern and thus may or may not have been affected by the spray project. *Pteronarcilla badia* was found only in September samples as was the case at Station 3.3. It has a spring/summer emergence pattern.

Stoneflies that did not appear to be affected by the spray project because they were found on each of the sampling dates were Chloroperlidae, *Hesperoperla*, *Zapada*, Leuctridae, and *Amphinemura*.

Of the caddisflies the only taxon that appeared to possibly be affected was in the family Lepidostomatidae. It was present on the June 7 sampling date and absent on dates thereafter, it did not reappear by September. It does have a spring/summer emergence pattern but may have been affected by the spray project.

Among the dipterans, *Tabanidae* was found only on the June 8 and 9 sampling dates and was absent thereafter. It has a summer emergence pattern and its occurrence was the same on Badger Creek at each of the stations. The occurrence of the Gastropod, *Lymnaea*, during all the June sampling dates except June 7, was also found at the Control Station (9.6). ^(not in control)

Table 14 shows the percent of occurrence of each of the trophic groups in the community during the monitored period at Station 8.4 on Tygh Creek. On June 8 there was a significant reduction in the number of predators in the community. This was observed also on Badger Creek but it was not sustained on either stream. There were even more predators on June 9 than on June 7 on Tygh Creek Station 8.4 and between 14 and 16 percent was found through the rest of the monitored period.

It was interesting that in September not all of the monitored groups were typically represented at Station 8.4. Compared to June samples there was a reduction in the number of scrapers, which may indicate a reduction of nutrients in the ecosystem in July and September. This was reflected in a reduction in macroinvertebrate community biomass in September. There were proportionately more filterers in the community in September, and the expected fall season increase in the number of shredders did not occur at Station 8.4 but was observed normal at Station 3.3 and Station 9.6.

The Control Station was 9.6. On the computer printout lists of taxa, one can observe that there was excellent

macroinvertebrate diversity at this station. There was good diversity at each of the stations on this stream, but this station was good compared to any stream. Clean water species found on each of the sampling dates indicated good water quality and good instream substrate in this stream reach. The good diversity and good balance among the trophic groups indicates good stability in this ecosystem. The observed number of shredders in this community is generally found where riparian habitat is in good condition. There were indications of a good source of nutrients in this ecosystem and periodically an indication of moderate amounts of sedimentation, particularly on the June 15 and July 7 sampling dates. This may have been due to impacts from roads used in the area. NO

The number of taxa at this station ranged from 42 to 55 and showed good diversity and did not fluctuate very much during the period monitored. The BCI values showed good conditions in June and excellent conditions in July and September and indicated this ecosystem was close to matching its potential.

The macroinvertebrate standing crop remained about the same during the period monitored being just over 1.0 g/m^2 which is about what one would expect in a stream with 30-35 mg/l alkalinity. The DAT Diversity Index value remained in the excellent range beginning June 7 with 21.7. It did fall into the upper good range on June 9 with 17.1, then was back up to 21.1 on June 15, ending up with a DAT of 23.1 in September. The number of organisms/ m^2 showed a rich community with some fluctuation which corresponded well with that found at the other stations, particularly 8.4 in June, and had an even higher increase in the number of organisms in July and September, going up to almost $13,000/\text{m}^2$ by September.

The patterns of occurrence shown in Table 18 for the macroinvertebrates taxa on Tygh Creek at the Control Station (9.6) on specific dates sampled, show a similar pattern to that found at the other stations sampled. The occurrence and absence of these species corresponds to expected nymphal and emergence patterns, and for most species compared favorably with life cycle patterns observed at the Control Station on Badger Creek.

In Table 15, which shows the percentage of trophic groups in the community at Station 9.6 on Tygh Creek, it was interesting that the percentage of predators in the community was very low on June 7, the day before the spray project, but remained at a good level for the other dates sampled. In September the macroinvertebrate community showed expected fall

season changes including an expected increase in the number of scrapers due to an increase in the number of diatoms and other algae during this time of year and the expected increase in the percentage of shredders in the community, which take advantage of the falling leaves (Allochthanous nutrient sources) during that time of year. The trophic balance in the community was good on each of the sampling dates at the Control Station.

USFS - INTERMOUNTAIN REGION - ANNUAL PROGRESS REPORT

MACROINVERTEBRATE ANALYSIS

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Forest/District Mt. Hood National Forest

Stream TYGH CREEK

State/County Oregon, Wasco County

Forest Service Cat.-No. B-t Spray Project

B.

| <u>Organism/m²</u> | <u>Station</u> | <u>Date(s)</u> | <u>Diversity Index DAT (mean)</u> | <u>Standing crop g/m² (mean)</u> | <u>Biotic Condition Index BCI 50</u> | <u># Taxa</u> |
|-------------------------------|----------------|----------------|-----------------------------------|---|--------------------------------------|---------------|
| 6,953 | 3.3 | 6-07-88 | 20.1 | 0.7 | 85 | 43 |
| 7,435 | 8.4 | 6-07-88 | 22.2 | 1.1 | 86 | 44 |
| 7,949 | 9.6 | 6-07-88 | 21.7 | 1.2 | 82 | 44 |
| 5,664 | 3.3 | 6-08-88 | 19.2 (w/decapoda) | 1.2 (.9) | 82 | 44 |
| 14,061 | 8.4 | 6-08-88 | 18.7 | 1.1 | 88 | 37 |
| 16,078 | 9.6 | 6-08-88 | 20.2 | 1.6 | 86 | 46 |
| 5,681 | 3.3 | 6-09-88 | 18.7 | 0.7 | 81 | 38 |
| 8,066 | 8.4 | 6-09-88 | 23.4 | 1.1 | 88 | 45 |
| 6,934 | 9.6 | 6-09-88 | 17.1 | 1.0 | 86 | 42 |
| 6,320 | 3.3 | 6-15-88 | 18.1 | 0.6 | 86 | 42 |
| 7,693 | 8.4 | 6-15-88 | 20.4 | 1.0 | 93 | 51 |
| 15,796 | 9.6 | 6-15-88 | 22.5 | 0.9 | 91 | 49 |
| 9,103 | 3.3 | 7-07-88 | 15.8 | 0.7 | 83 | 42 |
| 9,865 | 8.4 | 7-07-88 | 18.0 | 0.9 | 91 | 40 |
| 12,677 | 9.6 | 7-07-88 | 19.2 | 1.1 | 93 | 45 |
| 9,585 | 3.3 | 9-19-88 | 21.8 | 1.6 | 93 | 50 |
| 10,603 | 8.4 | 9-19-88 | 20.8 | 0.5 | 94 | 44 |
| 12,968 | 9.6 | 9-19-88 | 23.1 | 1.1 | 94 | 55 |
| <u>Scale:</u> | | <u>DAT</u> | <u>Standing crop</u> | | <u>BCI</u> | |
| Excellent | | 18 - 26 | 4.0 - 12.0 | | above 90 | |
| Good | | 11 - 17 | 1.6 - 4.0 | | 80 - 90 | |
| Fair | | 6 - 10 | 0.6 - 1.5 | | 72 - 79 | |
| Poor | | 0 - 5 | 0.0 - 0.5 | | below 72 | |

TABLE 10. MT. HOOD NATIONAL FOREST--TYGH CREEK STATION 3.3
 ECOLOGICAL ASSOCIATIONS LIST FOR ALL OF THE TAXA FOUND IN SAMPLES
 TAKEN JUNE 7, 8, 9, 15, JULY 7 AND SEPTEMBER 19

| Taxa | Habitat ^a | Habit ^b | Trophic Relationship ^c |
|------------------------------|----------------------|--------------------|-----------------------------------|
| Ephemeroptera | | | |
| <i>Epeorus</i> sp. | 1 | 1 | 1,2,3 |
| <i>Cinygmulia</i> sp. | 1,2 | 1 | 1,2,3 det,dia |
| <i>Rhithrogena</i> sp. | 1 | 1 | 1,2,3 det,dia |
| <i>Heptagenia</i> sp. | 1,2 | 1 | 1,2,3,6 |
| <i>Ephemerella inermis</i> | 1,2 | 1 | 1,2 det,dia |
| <i>Ephemerella doddsi</i> | 1 | 1,2,4 | 1,2,3,6 det,dia |
| <i>Ephemerella tibialis</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella delantala</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella teresa</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella hecuba</i> | 2 | 1,2,5 | 1,2 |
| <i>Paraleptophlebia</i> sp. | 1,2 | 1,2,4 | 1,2,5 det,dia |
| <i>Ameletus</i> sp. | 1,2 | 1,4 | 1,2 det,dia |
| <i>Baetis</i> sp. | 1,2 | 1,3,4 | 1,2,3 det,dia |
| Plecoptera | | | |
| <i>Chloroperlidae</i> | 1 | 1 | 1,2,3,6 |
| <i>Sialis parallela</i> | 1 | 1 | 6 |
| <i>Hesperoperla pacifica</i> | 1 | 1 | 6 |
| <i>Guttmus</i> sp. | 1 | 1 | 6 |
| <i>Kogotus</i> | 1 | 1 | 6 |
| <i>Zapada</i> sp. | 1 | 1,2 | 5 det |
| <i>Malenka</i> | 1,2 | 1,2 | 5 det |
| <i>Capniidae</i> | 1,2 | 1,2 | 5 det |
| <i>Leuctridae</i> | 1,2 | 1,2 | 5 det |
| <i>Perlidae</i> | 1 | 1 | 6 |
| <i>Perlinodes</i> | 1 | 1 | 6 |
| <i>Amphinemura</i> | 1,2 | 1,2 | 1,2,5 det |
| <i>Isoperla</i> sp. | 1,2 | 1,2 | 1,2,6 chi,eph |
| <i>Calineuria</i> | 1 | 1 | 6 |
| <i>Isozenoides</i> | 1 | 1 | 3,6 |
| <i>Glassenia sabulosa</i> | 1 | 1 | 6 |
| <i>Taenionema</i> sp. | 1,2 | 1,2 | 3 |
| <i>Pteronarcella badia</i> | 1,2 | 1,2 | 3,5,6 det |
| Trichoptera | | | |
| <i>Hydropsyche</i> sp. | 1,2 | 1,6 | 1,4 det,ani |
| <i>Cheumatopsyche</i> sp. | 1,2 | 1,6 | 1,4 det,ani |
| <i>Arctopsycha</i> sp. | 1 | 1,6 | 1,4 |
| <i>Parapsyche</i> sp. | 1 | 1,6 | 1,4,6 det,ani |
| <i>Micrasema</i> sp. | 1 | 2,8 | 1,2,5 |
| <i>Glossosoma</i> sp. | 1 | 1,8 | 3 dia |
| <i>Rhyacophila</i> sp. | 1 | 1 | 1,2,6 |
| <i>Limnephilidae</i> | 1,2 | 1,2,3 | 1,2,3,5- |
| <i>Lepidostoma</i> | 1,2 | 3,2,1 | 5 |
| <i>Hydroptila</i> | 1,2 | 1 | 3,7 |

TABLE 10 - Continued

| | | | |
|---|---|--|--|
| Coleoptera | | | |
| Elmidae | 1 | 1,3 | 1,2,3 |
| Diptera | | | |
| <u>Antocha monticola</u> | 1 | 1,7 | 1,2 |
| <u>Hexatoma</u> sp. | 1,2 | 1,2,5 | 6 |
| <u>Dicranota</u> | 1,2 | 2,5 | 1,5,6 |
| <u>Glutops rossi</u> | 2 | 2,5 | 7 |
| <u>Holorusia</u> | 2 | 5 | 5 det |
| Simuliidae | 1 | 1 | 1,4 |
| Chironomidae | 1,2 | 2,5,7 | 1,2,4,6,7 |
| Empididae | 1,2 | 2,5 | 1,2,6 |
| <u>Molophilus</u> | 1,2 | 5 | 1,2 |
| Ceratopogonidae | 2 | 2,5 | 1,2 |
| <u>Dixa</u> | 1,2 | 4,1 | 1,2 |
| <u>Maruina</u> | 2 | 5 | 1,2 |
| <u>Pericoma</u> | 2 | 5 | 1,2 |
| Odonata | | | |
| Gomphidae | 2 | 5 | 6 |
| <u>Ophiogomphus</u> | 1,2 | 5 | 6 |
| <u>Gomphus</u> | 2 | 5 | 6 |
| <u>Planaria</u> sp. | 1 | 1,3,4 | 1 scavengers |
| Ostracoda | 2 | 8 | 4 |
| Pelecypoda | 2 | 5 | 4 |
| Oligochaeta | 2 | 2,5 | 1,2 |
| Nematoda | 1,2 | 1,2,5 | 1 det |
| Copepoda | 2-lentic | 3,4 | 1,3,4 det, ani |
| Hydracarina | 1,2 | 1 | 7,8 |
| Decapoda | 2 | 3,4 | 1,2,6 scavengers |
| Gastropoda | | | |
| <u>Lymnaea</u> | 2 | 1,8 | 3 |
| <hr/> | | | |
| a. 1=lotic, erosional 2=lotic depositional | b. 1=clingers 2=sprawlers 3=climbers 4=swimmers 5=burrowers 6=net spinners 7=tube makers 8=case makers | c. 1=collectors 2=gatherers 3=scrapers 4=filterers 5=shredders 6=engulfers 7=piercers 8=parasitic | det=detritus dia=diatoms chi=Chironomidae eph=Ephemeroptera ani=animal |

TABLE 11. MT. HOOD NATIONAL FOREST--TYGH CREEK STATION 8.4
 ECOLOGICAL ASSOCIATIONS LIST FOR ALL OF THE TAXA FOUND IN SAMPLES
 TAKEN JUNE 7,8,9,15, JULY 7 AND SEPTEMBER 9

| Taxa | Habitat ^a | Habit ^b | Trophic Relationship ^c |
|---------------------------------|----------------------|--------------------|-----------------------------------|
| Ephemeroptera | | | |
| <i>Epearus</i> sp. | 1 | 1 | 1,2,3 |
| <i>Cinygmulia</i> sp. | 1,2 | 1 | 1,2,3 det,dia |
| <i>Rhithrogena</i> sp. | 1 | 1 | 1,2,3 det,dia |
| <i>Ephemerella inermis</i> | 1,2 | 1 | 1,2 det,dia |
| <i>Ephemerella doddsi</i> | 1 | 1,2,4 | 1,2,3,6 det,dia |
| <i>Ephemerella tibialis</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella delantala</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella teresa</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella hecuba</i> | 2 | 1,2,5 | 1,2 |
| <i>Ephemerella coloradensis</i> | 1,2 | 1 | 1,2,3 det,dia |
| <i>Ephemerella spinifera</i> | 1 | 1,2,4 | 1,2,6 |
| <i>Ephemerella margarita</i> | 1 | 1 | 1,2 |
| <i>Paralentophlebia</i> sp. | 1,2 | 1,2,4 | 1,2,5 det,dia |
| <i>Ameletus</i> sp. | 1,2 | 1,4 | 1,2 det,dia |
| <i>Baetis</i> sp. | 1,2 | 1,3,4 | 1,2,3 det,dia |
| Plecoptera | | | |
| <i>Chloroperlidae</i> | 1 | 1 | 1,2,3,6 |
| <i>Skwala parallela</i> | 1 | 1 | 6 |
| <i>Hesperoperla pacifica</i> | 1 | 1 | 6 |
| <i>Pteronarcys californica</i> | 1,2 | 1,2 | 5 det |
| <i>Cultus</i> sp. | 1 | 1 | 6 |
| <i>Kogotus</i> | 1 | 1 | 6 |
| <i>Zapada</i> sp. | 1 | 1,2 | 5 det |
| <i>Malenka</i> | 1,2 | 1,2 | 5 det |
| <i>Visoka cataractae</i> | 1 | 1 | 1,2,6 |
| <i>Alloperla</i> | | | |
| <i>Capniidae</i> | 1,2 | 1,2 | 5 det |
| <i>Leuctridae</i> | 1,2 | 1,2 | 5 det |
| <i>Perlidae</i> | 1 | 1 | 6 |
| <i>Perlinodes</i> | 1 | 1 | 6 |
| <i>Amphinemura</i> | 1,2 | 1,2 | 1,2,5 det |
| <i>Isoperla</i> sp. | 1,2 | 1,2 | 1,2,6 chi,eph |
| <i>Isogenoides</i> | 1 | 1 | 3,6 |
| <i>Glassenia sabulosa</i> | 1 | 1 | 6 |
| <i>Pteronarcella badia</i> | 1,2 | 1,2 | 3,5,6 det |
| Trichoptera | | | |
| <i>Hydropsyche</i> sp. | 1,2 | 1,6 | 1,4 det,ani |
| <i>Arctopsycha</i> sp. | 1 | 1,6 | 1,4 |
| <i>Onacosmoeucus</i> | 2 | 2 | 5 |
| <i>Oligophlebodes</i> | 1 | 1 | 1,2,3 - |
| <i>Himalopsyche</i> | 1 | 1 | 6,3 |
| <i>Neophylax</i> | 1,2 | 1,2 | 5 |
| <i>Micrasema</i> sp. | 1 | 2,8 | 1,2,5 |
| <i>Glossosoma</i> sp. | 1 | 1,8 | 3 dia |

TABLE 11 - Continued

| | | | | |
|---|---|--|--|----------------|
| <u>Rhyacophilidae</u> | sp. | 1 | 1 | 1,2,6 |
| Limnephilidae | | 1,2 | 1,2,3 | 1,2,3,5 |
| Lepidostomatidae | | 1,2 | 1,2,3,8 | 5 det |
| <u>Psychomyia</u> | | 1 | 1 | 1,2,3 |
| <u>Aliisotrichia</u> | | 1 | 1 | 1,2,3 |
| Coleoptera | | | | |
| Elmidae | | 1 | 1,3 | 1,2,3 |
| Diptera | | | | |
| <u>Antocha monticola</u> | | 1 | 1,7 | 1,2 |
| <u>Hexatoma</u> sp. | | 1,2 | 1,2,5 | 6 |
| <u>Dicranota</u> | | 1,2 | 2,5 | 1,5,6 |
| <u>Glutona rossi</u> | | 2 | 2,5 | 7 |
| Simuliidae | | 1 | 1 | 1,4 |
| Chironomidae | | 1,2 | 2,5,7 | 1,2,4,6,7 |
| Empididae | | 1,2 | 2,5 | 1,2,6 |
| Ceratopogonidae | | 2 | 2,5 | 1,2 |
| <u>Dixa</u> | | 1,2 | 4,1 | 1,2 |
| <u>Pericoma</u> | | 2 | 5 | 1,2 |
| Tabanidae | | | | |
| Planaria sp. | | 1 | 1,3,4 | 1 scavengers |
| Ostracoda | | 2 | 8 | 4 |
| Pelecypoda | | 2 | 5 | 4 |
| Oligochaeta | | 2 | 2,5 | 1,2 |
| Nematoda | | 1,2 | 1,2,5 | 1 det |
| Copepoda | | 2-lentic | 3,4 | 1,3,4 det, ani |
| Hydracarina | | 1,2 | 1 | 7,8 |
| Gastropoda | | | | |
| <u>Lymnaea</u> | | 2 | 1,8 | 3 |
| a. 1=lotic, erosional 2=lotic depositional | b. 1=clingers 2=sprawlers 3=climbers 4=swimmers 5=burrowers 6=net spinners 7=tube makers 8=case makers | c. 1=collectors 2=gatherers 3=scrapers 4=filterers 5=shredders 6=engulfers 7=piercers 8=parasitic | det=detritus dia=diatoms chi=Chironomidae eph=Ephemeroptera ani=animal | |

TABLE 12. MT. HOOD NATIONAL FOREST--TYGH CREEK STATION 9.6
 ECOLOGICAL ASSOCIATIONS LIST FOR ALL OF THE TAXA FOUND IN SAMPLES
 TAKEN JUNE 7,8,9,15, JULY 7 AND SEPTEMBER 9

| Taxa | Habitat ^a | Habit ^b | Trophic Relationship ^c |
|---------------------------------|----------------------|--------------------|-----------------------------------|
| Ephemeroptera | | | |
| <i>Epeorus</i> sp. | 1 | 1 | 1,2,3 |
| <i>Cinygmulia</i> sp. | 1,2 | 1 | 1,2,3 det,dia |
| <i>Rhithrogena</i> sp. | 1 | 1 | 1,2,3 det,dia |
| <i>Heptagenia</i> sp. | 1,2 | 1 | 1,2,3,6 |
| <i>Ephemerella inermis</i> | 1,2 | 1 | 1,2 det,dia |
| <i>Ephemerella doddsi</i> | 1 | 1,2,4 | 1,2,3,6 det,dia |
| <i>Ephemerella tibialis</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella soquele</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella delantala</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella teresa</i> | 1 | 1,2 | 1,2 |
| <i>Ephemerella coloradensis</i> | 1,2 | 1 | 1,2,3 det,dia |
| <i>Ephemerella margarita</i> | 1 | 1 | 1,2 |
| <i>Paraleptophlebia</i> sp. | 1,2 | 1,2,4 | 1,2,5 det,dia |
| <i>Ameletus</i> sp. | 1,2 | 1,4 | 1,2 det,dia |
| <i>Baetis</i> sp. | 1,2 | 1,3,4 | 1,2,3 det,dia |
| Plecoptera | | | |
| <i>Chloroperlidae</i> | 1 | 1 | 1,2,3,6 |
| <i>Skwala parallela</i> | 1 | 1 | 6 |
| <i>Hesperoperla pacifica</i> | 1 | 1 | 6 |
| <i>Pteronarcys californica</i> | 1,2 | 1,2 | 5 det |
| <i>Megarcys</i> | 1 | 1 | 6 |
| <i>Cultus</i> sp. | 1 | 1 | 6 |
| <i>Kogotus</i> | 1 | 1 | 6 |
| <i>Zapada</i> sp. | 1 | 1,2 | 5 det |
| <i>Malenka</i> | 1,2 | 1,2 | 5 det |
| <i>Visoka</i> | 1 | 1,2 | 5 det |
| <i>Amphinemura</i> | 1,2 | 1,2 | 1,2,5 det |
| <i>Calineuria</i> | 1 | 1 | 6 |
| <i>Capniidae</i> | 1,2 | 1,2 | 5 det |
| <i>Leuctridae</i> | 1,2 | 1,2 | 5 det |
| <i>Perlodidae</i> | 1 | 1 | 6 |
| <i>Perlidae</i> | 1 | 1 | 6 |
| <i>Xoraperla</i> | 1,2 | 1,2 | 1,2,5 det |
| <i>Isoperla</i> sp. | 1,2 | 1,2 | 1,2,6 chi,eph |
| <i>Isogenoides</i> | 1 | 1 | 3,6 |
| <i>Taenionema</i> | | | |
| Trichoptera | | | |
| <i>Hydropsyche</i> sp. | 1,2 | 1,6 | 1,4 det,ani |
| <i>Arctopsyche</i> sp. | 1 | 1,6 | 1,4 |
| <i>Parapsyche</i> sp. | 1 | 1,6 | 1,4,6 det,ani |
| <i>Brachycentrus</i> sp. | 1 | 1,8 | 1,3,4 det,ani,dia |
| <i>Oligophlebodes</i> | 1 | 1 | 1,2,3 |
| <i>Neophylax</i> | 1,2 | 1,2 | 5 |
| <i>Micrasema</i> sp. | 1 | 2,8 | 1,2,5 |
| <i>Glossosoma</i> sp. | 1 | 1,8 | 3 dia |

TABLE 12 - Continued

| | | | |
|--------------------------|-----------|---------|----------------|
| <u>Rhyacophilidae</u> | 1 | 1 | 1,2,6 |
| <u>Limnephilidae</u> | 1,2 | 1,2,3 | 1,2,3,5 |
| <u>Lepidostomatidae</u> | 1,2 | 1,2,3,8 | 5 det |
| <u>Alisotrichia</u> | 1 | 1 | 1,2,3 |
| <u>Hydroptila</u> | 1,2 | 1 | 3,7 |
| <u>Meselyana</u> | 1,2 | 2 | 1,2 |
| Coleoptera | | | |
| <u>Elmidae</u> | 1 | 1,3 | 1,2,3 |
| <u>Hydrophilidae</u> | 2, lentic | 3 | 6 |
| <u>Ametor</u> | 2 | 1 | 6 |
| Megaloptera | | | |
| <u>Sialis</u> | 1,2 | 5,3,1 | 6 |
| Diptera | | | |
| <u>Antocha monticola</u> | 1 | 1,7 | 1,2 |
| <u>Hexatoma</u> sp. | 1,2 | 1,2,5 | 6 |
| <u>Dicranota</u> | 1,2 | 2,5 | 1,5,6 |
| <u>Glutops rossi</u> | 2 | 2,5 | 7 |
| <u>Simuliidae</u> | 1 | 1 | 1,4 |
| <u>Chironomidae</u> | 1,2 | 2,5,7 | 1,2,4,6,7 |
| <u>Empididae</u> | 1,2 | 2,5 | 1,2,6 |
| <u>Ceratopogonidae</u> | 2 | 2,5 | 1,2 |
| <u>Dixa</u> | 1,2 | 4,1 | 1,2 |
| <u>Pericoma</u> | 2 | 5 | 1,2 |
| <u>Maruina</u> | 2 | 5 | 1,2 |
| <u>Oreogeton</u> | 1,2 | 2,5 | 6,1,2 |
| <u>Planaria</u> sp. | 1 | 1,3,4 | 1 scavengers |
| <u>Ostracoda</u> | 2 | 8 | 4 |
| <u>Pelecypoda</u> | 2 | 5 | 4 |
| <u>Oligochaeta</u> | 2 | 2,5 | 1,2 |
| <u>Nematoda</u> | 1,2 | 1,2,5 | 1 det |
| <u>Copepoda</u> | 2-lentic | 3,4 | 1,3,4 det, ani |
| <u>Hydracarina</u> | 1,2 | 1 | 7,8 |
| <u>Gastropoda</u> | | | |
| <u>Lymnaea</u> | 2 | 1,8 | 3 |

a. 1=lotic,
erosional
2=lotic
depositional

b. 1=clingers
2=sprawlers
3=climbers
4=swimmers
5=burrowers
6=net spinners
7=tube makers
8=case makers

c. 1=collectors
2=gatherers
3=scrapers
4=filterers
5=shredders
6=engulfers
7=piercers
8=parasitic

det=detritus
dia=diatoms
chi=Chironomidae
eph=Ephemeroptera
ani=animal

TABLE 13. PERCENT OF EACH TROPHIC GROUP FOUND IN THE MACROINVERTEBRATE COMMUNITIES OF TYGH CREEK STATION 3.3 ON THE DATES SAMPLED IN 1988

| Trophic Group | JUNE | | | JULY | | SEPTEMBER | |
|------------------------|------|----|----|------|----|-----------|----|
| | 7 | 8 | 9 | 15 | 7 | 19 | |
| Scrapers | 11 | 14 | 16 | 14 | 15 | | 15 |
| Collectors - Gatherers | 55 | 49 | 50 | 47 | 50 | | 36 |
| Filterers | 5 | 8 | 6 | 14 | 9 | | 7 |
| Engulfers (predators) | 13 | 15 | 9 | 14 | 9 | | 20 |
| Piercers | 5 | 3 | 3 | 3 | 5 | | 4 |
| Shredders | 11 | 11 | 16 | 8 | 12 | | 18 |

TABLE 14. PERCENT OF EACH TROPHIC GROUP FOUND IN THE MACROINVERTEBRATE COMMUNITIES OF TYGH CREEK STATION 8.4 ON THE DATES SAMPLED IN 1988

| Trophic Group | JUNE | | | JULY | | SEPTEMBER |
|------------------------|------|----|----|------|----|-----------|
| | 7 | 8 | 9 | 15 | 7 | 9 |
| Scrapers | 14 | 13 | 13 | 12 | 9 | 10 |
| Collectors - Gatherers | 48 | 47 | 50 | 49 | 49 | 45 |
| Filterers | 7 | 9 | 5 | 7 | 9 | 12 |
| Engulfers (predators) | 14 | 6 | 16 | 14 | 16 | 14 |
| Piercers | 3 | 6 | 5 | 2 | 3 | 5 |
| Shredders | 14 | 19 | 11 | 16 | 14 | 14 |

TABLE 15. PERCENT OF EACH TROPHIC GROUP FOUND IN THE MACROINVERTEBRATE COMMUNITIES OF TYGH CREEK STATION 9.6 ON THE DATES SAMPLED IN 1988

| Trophic Group | JUNE | | | JULY | | SEPTEMBER 9 |
|------------------------|------|----|----|------|----|----------------|
| | 7 | 8 | 9 | 15 | 7 | |
| Scrapers | 11 | 12 | 12 | 10 | 10 | 15 |
| Collectors - Gatherers | 54 | 49 | 50 | 49 | 45 | 43 |
| Filterers | 8 | 7 | 8 | 10 | 10 | 4 |
| Engulfers (predators) | 3 | 12 | 15 | 14 | 15 | 16 |
| Piercers | 8 | 5 | 3 | 3 | 5 | 2 |
| Shredders | 16 | 15 | 12 | 14 | 15 | 20 |

TABLE 16. OCCURRENCE OF MACROINVERTEBRATE TAXA -- TYGH CREEK STATION 3.3
ON THE DATES SAMPLED. A PLUS (+) INDICATES PRESENCE, BLANK INDICATES ABSENCE

| Taxa | JUNE | | | | JULY | SEPTEMBER |
|-------------------------------|------|---|---|----|------|-----------|
| | 7 | 8 | 9 | 15 | 7 | 19 |
| Ephemeroptera | | | | | | |
| <u>Epeorus</u> sp. | + | + | + | + | + | + |
| <u>Cinygmulia</u> sp. | + | + | + | + | + | + |
| <u>Rhithrogena</u> sp. | + | | | | | + |
| <u>Heptagenia</u> sp. | | | | | + | |
| <u>Ephemerella inermis</u> | + | + | + | + | | + |
| <u>Ephemerella doddsi</u> | + | + | + | + | + | + |
| <u>Ephemerella tibialis</u> | + | + | + | + | | |
| <u>Ephemerella delantalae</u> | + | + | | + | + | + |
| <u>Ephemerella teresa</u> | + | | | + | | |
| <u>Ephemerella hecuba</u> | | | | + | + | |
| <u>Paraleptophlebia</u> sp. | + | + | + | + | + | + |
| <u>Ameletus</u> sp. | + | + | + | + | + | + |
| <u>Baetis</u> sp. | + | + | + | + | + | + |
| Plecoptera | | | | | | |
| <u>Chloroperlidae</u> | + | + | + | + | + | + |
| <u>Skwala parallela</u> | | | | | | + |
| <u>Hesperoperla pacifica</u> | | + | + | + | | + |
| <u>Cultus</u> sp. | | | | | | + |
| <u>Kogotus</u> | + | + | | | | |
| <u>Zapada</u> sp. | + | + | + | + | + | + |
| <u>Malenka</u> | | | + | | | + |
| Capniidae | + | | | | + | + |
| Leuctridae | | + | + | | | + |
| Perlidae | + | + | + | + | | + |
| <u>Perlinodes</u> | | | | | | + |
| <u>Amphinemura</u> | + | + | + | + | + | + |
| <u>Isoperla</u> sp. | + | | + | | | |
| <u>Calineuria</u> | | | | + | | |
| <u>Isogenoides</u> | | + | | + | | |
| <u>Classenia sabulosa</u> | | | + | | | |
| <u>Taenionema</u> sp. | | | | | | + |
| <u>Pteronarcella badia</u> | | | | | | + |
| Trichoptera | | | | | | |
| <u>Hydropsyche</u> sp. | + | + | + | + | + | + |
| <u>Cheumatopsyche</u> sp. | | + | | | | |
| <u>Arctopsyche</u> sp. | | | | + | | |
| <u>Parapsyche</u> sp. | | | | + | | |
| <u>Micrasema</u> sp. | | | | | + | |
| <u>Glossosoma</u> sp. | + | + | + | + | + | + |
| <u>Rhyacophila</u> sp. | + | + | + | + | + | + |
| Limnephilidae | + | + | | | | |
| <u>Lepidostoma</u> | | | | | | + |
| <u>Hydropsila</u> | + | | | + | | |

TABLE 16 - Continued

| Taxa | JUNE | | | JULY | | SEPTEMBER | |
|--------------------------|------|---|---|------|---|-----------|---|
| | 7 | 8 | 9 | 15 | 7 | 19 | |
| Coleoptera | | | | | | | |
| Elmidae | | | + | + | + | + | + |
| Diptera | | | | | | | |
| <i>Antocha monticola</i> | + | + | + | | | | + |
| <i>Hexatoma</i> sp. | + | + | | + | + | | + |
| <i>Dicranota</i> | + | + | + | + | + | | + |
| <i>Glutops rossi</i> | + | | | | | | + |
| <i>Holorusia</i> | | | | | | | + |
| Simuliidae | + | + | + | + | + | | + |
| Chironomidae | + | + | + | + | + | | + |
| Empididae | + | + | + | + | | | + |
| <i>Molophilus</i> | + | | | | | | |
| Ceratopogonidae | + | + | + | | | | + |
| <i>Dixa</i> | + | + | | + | + | | |
| <i>Maruina</i> | + | + | + | + | + | | |
| <i>Pericoma</i> | | | | | | | + |
| Odonata | | | | | | | |
| Gomphidae | + | | + | | | | + |
| <i>Ophiogomphus</i> | | | | | | | + |
| <i>Gomphus</i> | | | | | | | + |
| <i>Planaria</i> sp. | + | | | | | | + |
| Ostracoda | | | | | | | + |
| Pelecypoda | | | | | | | + |
| Oligochaeta | + | + | + | + | + | | + |
| Nematoda | + | + | + | + | + | | + |
| Copepoda | + | + | + | + | + | | + |
| Hydracarina | + | + | + | + | + | | + |
| Decapoda | | | | | | | + |
| Gastropoda | | | | | | | + |
| <i>Lymnaea</i> | | | | | | | + |

TABLE 17. OCCURRENCE OF MACROINVERTEBRATE TAXA -- TYGH CREEK STATION 8.4
ON THE DATES SAMPLED. A PLUS (+) INDICATES PRESENCE, BLANK INDICATES ABSENCE

| Taxa | | | | | | JULY | SEPTEMBER |
|---------------------------------|---|---|---|----|---|------|-----------|
| | 7 | 8 | 9 | 15 | 7 | | |
| Ephemeroptera | | | | | | | |
| <u>Epeorus</u> sp. | + | + | + | + | + | | + |
| <u>Cinygmulia</u> sp. | + | + | + | + | + | | + |
| <u>Rhithrogena</u> sp. | + | + | + | | | | |
| <u>Ephemerella inermis</u> | + | + | + | + | + | | + |
| <u>Ephemerella doddsi</u> | + | + | + | + | + | | + |
| <u>Ephemerella tibialis</u> | + | + | + | + | + | | + |
| <u>Ephemerella delantala</u> | + | + | + | + | + | | |
| <u>Ephemerella teresa</u> | | | | + | | | |
| <u>Ephemerella hecuba</u> | | + | + | + | + | | |
| <u>Ephemerella coloradensis</u> | + | | | | + | | |
| <u>Ephemerella spinifera</u> | + | | | + | | | |
| <u>Ephemerella margarita</u> | | | | + | | | + |
| <u>Paraleptophlebia</u> sp. | + | + | + | + | + | | + |
| <u>Ameletus</u> sp. | + | + | + | + | + | | + |
| <u>Baetis</u> sp. | + | + | + | + | + | | + |
| Plecoptera | | | | | | | |
| Chloroperlidae | + | + | + | + | + | | + |
| <u>Skwala parallelia</u> | | | | | | | + |
| <u>Hesperoperla pacifica</u> | + | + | + | + | + | | + |
| <u>Pteronarcys californica</u> | | | | | | | + |
| <u>Cultus</u> sp. | + | | | | + | | + |
| <u>Kogotus</u> | | + | + | + | | | + |
| <u>Zapada</u> sp. | + | + | + | + | + | | + |
| <u>Malenka</u> | | | | | | | + |
| <u>Visoka cataractae</u> | + | + | + | + | | | + |
| <u>Alloperla</u> | + | | | | | | |
| Capniidae | | | | | + | | + |
| Leuctridae | + | + | + | + | + | | + |
| Perlidae | + | + | + | + | | | |
| <u>Perlinodes</u> | | | | | | | + |
| <u>Amphineura</u> | + | + | + | + | + | | + |
| <u>Isoperla</u> sp. | | + | + | + | | | + |
| <u>Isogenoides</u> | | | | | + | | |
| <u>Glassenia sabulosa</u> | | + | + | | + | | |
| <u>Pteronarcella badia</u> | | | | | | | + |
| Trichoptera | | | | | | | |
| <u>Hydropsyche</u> sp. | + | + | + | + | + | | + |
| <u>Arctopsyche</u> sp. | | | | | | | + |
| <u>Onocosmoecus</u> | | | | | + | | |
| <u>Oligophlebodes</u> | | | | | + | | |
| <u>Himalopsycne</u> | | | | | + | | |
| <u>Neophylax</u> | | | | | + | | |
| <u>Micrasema</u> sp. | + | + | - | + | + | | |

TABLE 17 - Continued

| Taxa | JUNE | | | | | JULY | SEPTEMBER |
|---------------------------|------|---|---|----|---|------|-----------|
| | 7 | 8 | 9 | 15 | 7 | 19 | |
| <u>Glossosoma</u> sp. | + | + | + | + | + | | + |
| <u>Rhyacophilidae</u> sp. | + | + | + | + | + | | + |
| Limnephilidae | + | + | + | + | | | |
| Lepidostomatidae | + | | | | | | |
| <u>Psychomyia</u> | | | | | | | + |
| <u>Alisotrichia</u> | | | | | | | + |
| Coleoptera | | | | | | | |
| Elmidae | + | + | + | + | + | | + |
| Diptera | | | | | | | |
| <u>Antocha monticola</u> | + | + | + | + | + | | + |
| <u>Hexatoma</u> sp. | + | + | + | + | + | | + |
| <u>Dicranota</u> | | | | | | | + |
| <u>Glutops rossi</u> | | + | + | | | | + |
| Simuliidae | + | + | | + | + | | + |
| Chironomidae | + | + | + | + | + | | + |
| Empididae | + | + | + | + | + | | + |
| Ceratopogonidae | + | + | + | + | + | | + |
| <u>Dixa</u> | | | | | | | + |
| <u>Pericoma</u> | | | | | | | |
| Tabanidae | | + | + | | | | |
| <u>Planaria</u> sp. | + | + | + | + | | | |
| Ostracoda | + | + | + | + | + | | + |
| Pelecypoda | | | | | | | + |
| Oligochaeta | + | + | + | + | + | | + |
| Nematoda | + | | + | + | + | | + |
| Copepoda | + | + | + | + | + | | + |
| Hydracarina | + | + | + | + | + | | + |
| Gastropoda | + | + | + | + | | | |
| <u>Lymnaea</u> | | + | + | + | | | |

TABLE 18. OCCURRENCE OF MACROINVERTEBRATE TAXA -- TYGH CREEK STATION 9.6
ON THE DATES SAMPLED. A PLUS (+) INDICATES PRESENCE, BLANK INDICATES ABSENCE

| Taxa | JUNE | | | | | JULY | SEPTEMBER |
|---------------------------------|------|---|---|----|---|------|-----------|
| | 7 | 8 | 9 | 15 | 7 | 19 | |
| Ephemeroptera | | | | | | | |
| <u>Epeorus</u> sp. | + | + | + | + | + | | + |
| <u>Cinygmulia</u> sp. | + | + | + | + | + | | + |
| <u>Rhithrogena</u> sp. | | + | + | | + | | + |
| <u>Heptagenia</u> sp. | | | | | | | + |
| <u>Ephemerella inermis</u> | + | + | | + | + | | + |
| <u>Ephemerella doddsi</u> | | + | + | + | + | | + |
| <u>Ephemerella tibialis</u> | + | + | + | + | + | | |
| <u>Ephemerella soquele</u> | | + | + | | | | |
| <u>Ephemerella delantalata</u> | | + | + | + | | | |
| <u>Ephemerella teresa</u> | | | + | + | | | |
| <u>Ephemerella coloradensis</u> | | + | + | + | + | | + |
| <u>Ephemerella margarita</u> | + | | | | | | + |
| <u>Paraleptophlebia</u> sp. | + | + | + | + | + | | + |
| <u>Ameletus</u> sp. | + | + | + | + | + | | + |
| <u>Baetis</u> sp. | + | + | + | + | + | | + |
| Plecoptera | | | | | | | |
| <u>Chloroperlidae</u> | + | + | + | + | + | | + |
| <u>Skwala parallelia</u> | | | + | | | | + |
| <u>Hesperoperla pacifica</u> | | + | + | | | | + |
| <u>Pteronarcys californica</u> | | + | + | + | | | + |
| <u>Megarcys</u> | | + | | + | | + | |
| <u>Cultus</u> sp. | | | | + | + | | + |
| <u>Kogotus</u> | | | | | | | + |
| <u>Zapada</u> sp. | + | + | + | + | + | | + |
| <u>Malenka</u> | | | + | | | | + |
| <u>Visoka</u> | + | + | + | + | + | | + |
| <u>Amphinemura</u> | + | + | | + | + | | + |
| <u>Calineuria</u> | | | | | | + | |
| Capniidae | + | | | | | | + |
| Leuctridae | + | + | + | + | + | | + |
| Perlodidae | + | | | + | + | | + |
| Perlidae | | + | | + | + | | + |
| <u>Xoraperla</u> | | + | | + | + | | + |
| <u>Isoperla</u> sp. | | | + | | | | + |
| <u>Isogenoides</u> | | | | | | | + |
| <u>Taenionema</u> | | | | | | | + |
| Trichoptera | | | | | | | |
| <u>Hydropsyche</u> sp. | + | + | + | + | + | | + |
| <u>Arctopsycha</u> sp. | | + | | | + | | |
| <u>Parapsyche</u> sp. | | | | + | | | |
| <u>Brachycentrus</u> sp. | | | | | | | + |
| <u>Oligophlebodes</u> | | | | | + | | |
| <u>Neophylax</u> | | | | | | | |

TABLE 18 - Continued

| Taxa | JUNE | | | | | JULY | SEPTEMBER |
|--------------------------|------|---|---|----|---|------|-----------|
| | 7 | 8 | 9 | 15 | 7 | 19 | |
| <u>Micrasema</u> sp. | + | + | + | + | + | | + |
| <u>Glossosoma</u> sp. | + | + | + | + | + | | + |
| <u>Rhyacophila</u> sp. | + | + | + | + | + | | + |
| Limnephilidae | | | | + | | | |
| Lepidostomatidae | + | + | | + | + | | + |
| <u>Alisotrichia</u> | | | | | | | + |
| <u>Hydroptila</u> | + | | | | | | |
| <u>Meselyana</u> | | | | + | | | |
| Coleoptera | | | | | | | |
| Elmidae | + | + | + | + | + | | + |
| Hydrophilidae | + | | | | | | |
| <u>Ametor</u> | | | | + | | | |
| Megaloptera | | | | | | | |
| <u>Sialis</u> | | | + | | | | + |
| Diptera | | | | | | | |
| <u>Antocha monticola</u> | + | + | + | + | + | | + |
| <u>Hexatoma</u> sp. | + | + | + | + | + | | + |
| <u>Dicranota</u> | | | | | | | + |
| <u>Glutops rossi</u> | + | + | | | | + | |
| Simuliidae | + | + | + | + | + | | |
| Chironomidae | + | + | + | + | + | | + |
| Empididae | + | + | + | + | + | | + |
| Ceratopogonidae | + | + | + | + | + | | + |
| <u>Dixa</u> | | | | | | + | + |
| <u>Pericoma</u> | | | | | | | + |
| <u>Maruina</u> | + | | + | | | | + |
| <u>Oreogeton</u> | + | | | | | | |
| Planaria sp. | + | + | + | + | + | | + |
| Ostracoda | + | + | + | + | + | | + |
| Pelecypoda | | | | | | | |
| Oligochaeta | + | + | + | + | + | | |
| Nematoda | + | + | | + | + | | + |
| Copepoda | + | + | + | + | + | | + |
| Hydracarina | + | + | + | + | + | | + |
| Gastropoda | + | + | + | + | | | |
| Lymnaea | + | + | | | | | |

SPECIES ANALYSES

STATION: 3.3

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 07 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|-----------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 58.10 | 1.784 | 21. | 37. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 370.14 | 2.568 | 30. | 77. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | RHITHROGENA | | 4.30 | 0.634 | 21. | 13. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 27.98 | 1.447 | 48. | 69. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 55.95 | 1.748 | 2. | 3. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 23.87 | 1.374 | 24. | 33. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 10.78 | 1.032 | 24. | 25. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 71.02 | 1.851 | 48. | 89. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 383.06 | 2.583 | 72. | 188. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DELANTALA | 32.28 | 1.509 | 24. | 36. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TERESA | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | PLECOPTERA | | | | 98.99 | 1.998 | 48. | 98. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | KOGOTUS | | 195.83 | 2.292 | 24. | 55. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOPERLA | | 12.91 | 1.111 | 18. | 20. | |
| INSECTA | PLECOPTERA | PERLODIDAE | | | 68.86 | 1.838 | 48. | 88. | |
| INSECTA | PLECOPTERA | CAPNIIDAE | ZAPADA | | 10.78 | 1.032 | 32. | 33. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | CALINEURIA | | 2040.10 | 3.310 | 16. | 53. | |
| INSECTA | PLECOPTERA | PERLIDAE | AMPHINEMURA | | 25.82 | 1.412 | 24. | 34. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | | | 8.61 | 0.935 | 8. | 6. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | TRICHOPTERA | | | | 8.61 | 0.935 | 72. | 67. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 49.50 | 1.695 | 108. | 183. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 71.02 | 1.851 | 18. | 33. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 200.14 | 2.301 | 24. | 55. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 344.32 | 2.537 | 104. | 264. | |
| INSECTA | ODONATA | GOMPHIDAE | | | 4.30 | 0.634 | 108. | 68. | |
| INSECTA | DIPTERA | | | | 49.50 | 1.695 | 108. | 183. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | DIPTERA | TIPULIDAE | DICRANOTA | | 27.98 | 1.447 | 24. | 35. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXTATOMA | | 23.87 | 1.374 | 36. | 49. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 36.58 | 1.563 | 108. | 169. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 1370.82 | 3.137 | 108. | 339. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 15.06 | 1.178 | 95. | 112. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 92.54 | 1.966 | 108. | 212. | |
| INSECTA | DIPTERA | DIXIDAE | | | 8.61 | 0.935 | 108. | 101. | |
| INSECTA | DIPTERA | TIPULIDAE | MOLOPHILUS | | 137.73 | 2.139 | 72. | 154. | |
| INSECTA | DIPTERA | PELECORHYNCHIDAE | GLUTOPS | ROSSI | 8.61 | 0.935 | 30. | 28. | |
| INSECTA | DIPTERA | PSYCHODIDAE | MARUINA | | 8.61 | 0.935 | 38. | 34. | |
| CRUSTACEA | COPEPODA | | | | 241.02 | 2.382 | 108. | 257. | |
| TURBELLARIA | TRICLADIDA | PLANARIIDAE | PLANARIA | | 8.61 | 0.935 | 108. | 101. | |
| OLIGOCHAETA | | | | | 193.68 | 2.287 | 108. | 247. | |
| ARACHNIDA | HYDRACARINA | | | | 253.94 | 2.405 | 98. | 238. | |
| NEMATODA | | | | | 264.70 | 2.423 | 108. | 262. | |
| | | | | TOTALS | 6953.11 | 3.842 | | 0.65 | |

TOTAL SAMPLE STATISTICS

STATION: 8.4

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 07 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|-------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 44 | 7436. | 6772. | 8099. | 967.98 | 5.82 | 13.02 | 4.0283 | 0.2635 | 56. | 58. |

SPECIES ANALYSES

STATION: 8.4

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 07 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|--------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 320.65 | 2.506 | 21. | 53. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 269.00 | 2.430 | 30. | 73. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | RHITHROGENA | | 12.91 | 1.111 | 21. | 23. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | COLORADENSIS | 10.76 | 1.032 | 18. | 19. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 8.61 | 0.935 | 48. | 45. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 131.27 | 2.118 | 2. | 4. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 269.00 | 2.430 | 24. | 58. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | SPINIFERA | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 350.78 | 2.545 | 24. | 61. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 172.16 | 2.236 | 48. | 107. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 275.46 | 2.440 | 72. | 178. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DELANTALA | 49.50 | 1.895 | 24. | 41. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | CULTUS | | 159.25 | 2.202 | 24. | 53. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ZAPADA | | 6.46 | 0.810 | 12. | 10. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | HESPEROPERLA | PACIFICA | 43.04 | 1.834 | 16. | 26. | |
| INSECTA | PLECOPTERA | PERLIDAE | AMPHINEMURA | | 51.65 | 1.713 | 18. | 31. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | VISOKA | | 15.06 | 1.178 | 6. | 7. | |
| INSECTA | PLECOPTERA | LEUCTRIDAE | ALLOOPERLA | | 60.26 | 1.780 | 18. | 32. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | PERLIDA | | 47.34 | 1.675 | 108. | 181. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 55.95 | 1.748 | 24. | 42. | |
| INSECTA | PLECOPTERA | PERLIDA | | | 6.46 | 0.810 | 24. | 19. | |
| INSECTA | TRICHOPTERA | | HYDROPSYCHE | | 12.91 | 1.111 | 72. | 80. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | | | 103.30 | 2.014 | 108. | 218. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | | | 68.71 | 1.824 | 108. | 197. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 68.86 | 1.838 | 18. | 33. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 94.69 | 1.976 | 24. | 47. | |
| INSECTA | TRICHOPTERA | LEPIDOSTOMATIDAE | | | 8.61 | 0.935 | 18. | 17. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 925.36 | 2.986 | 104. | 308. | |
| INSECTA | DIPTERA | | | | 25.82 | 1.412 | 108. | 152. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 178.82 | 2.252 | 24. | 54. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXATOMA | | 19.37 | 1.287 | 36. | 46. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 19.37 | 1.287 | 108. | 139. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 1471.97 | 3.188 | 108. | 342. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 34.43 | 1.537 | 95. | 146. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 83.93 | 1.924 | 108. | 208. | |
| INSECTA | DIPTERA | TIPULIDAE | | | 15.06 | 1.178 | 72. | 85. | |
| CRUSTACEA | COPEPODA | | | | 27.98 | 1.447 | 108. | 156. | |
| CRUSTACEA | OSTRACODA | | | | 79.82 | 1.901 | 108. | 205. | |
| GASTROPODA | | | | | 4.30 | 0.634 | 96. | 61. | |
| TURBELLARIA | TRICLADIDA | PLANARIIDAE | PLANARIA | | 4.30 | 0.634 | 108. | 68. | |
| OLIGOCHAETA | | | | | 994.22 | 2.997 | 108. | 324. | |
| ARACHNIDA | HYDRACARINA | | | | 847.89 | 2.928 | 98. | 287. | |
| NEMATODA | | | | | 6.46 | 0.810 | 108. | 87. | |
| | | | TOTALS | | 7435.16 | 3.871 | | 1.10 | |

TOTAL SAMPLE STATISTICS

STATION: 9.6

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 07 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * | NUMBERS DATA | | | | | | | | | | |
| 5 | 44 | 7949. | 4811. | 11088. | 4578.04 | 25.75 | 57.59 | 3.9532 | 0.2764 | 60. | 61. |

SPECIES ANALYSES

STATION: 9.6

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 07 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|-----------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 148.49 | 2.172 | 21. | 46. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 266.85 | 2.426 | 30. | 73. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 53.80 | 1.731 | 48. | 83. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 411.03 | 2.614 | 24. | 63. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 684.97 | 2.823 | 24. | 68. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 49.50 | 1.695 | 48. | 81. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 535.85 | 2.729 | 72. | 196. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | MARGARITA | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | PLECOPTERA | | | | 51.65 | 1.713 | 48. | 82. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 193.68 | 2.287 | 24. | 55. | |
| INSECTA | PLECOPTERA | CAPNIIDAE | | | 25.82 | 1.412 | 32. | 45. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 27.98 | 1.447 | 16. | 23. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 114.06 | 2.057 | 6. | 12. | |
| INSECTA | PLECOPTERA | LEUCTRIDAE | | | 109.75 | 2.040 | 18. | 37. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOGENOIDES | | 6.46 | 0.810 | 24. | 19. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | VISOKA | | 34.43 | 1.537 | 108. | 166. | |
| INSECTA | PLECOPTERA | PERLODIDAE | | | 17.22 | 1.236 | 48. | 59. | |
| INSECTA | TRICHOPTERA | | | | 27.98 | 1.447 | 72. | 104. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 36.58 | 1.563 | 108. | 169. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 32.28 | 1.509 | 24. | 36. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 230.26 | 2.362 | 18. | 43. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 40.89 | 1.612 | 24. | 39. | |
| INSECTA | TRICHOPTERA | LEPIDOSTOMATIDAE | | | 8.61 | 0.935 | 18. | 17. | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | HYDROPTILA | | 6.46 | 0.810 | 108. | 87. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 1235.25 | 3.092 | 104. | 322. | |
| INSECTA | COLEOPTERA | HYDROPHILIDAE | | | 8.61 | 0.935 | 72. | 67. | |
| INSECTA | DIPTERA | TIPULIDAE | | | 8.61 | 0.935 | 72. | 67. | |
| INSECTA | DIPTERA | | | | 15.06 | 1.178 | 108. | 127. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 165.70 | 2.219 | 24. | 53. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXATOMA | | 75.32 | 1.877 | 36. | 68. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 120.51 | 2.081 | 108. | 225. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 2074.53 | 3.317 | 108. | 358. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 4.30 | 0.634 | 95. | 60. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 5.6 | 0.649 | 108. | 221. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | PERICOMA | | 111.90 | 2.049 | 108. | 221. | |
| INSECTA | DIPTERA | PSYCHODIDAE | PERICOMA | | 17.22 | 1.236 | 36. | 44. | |
| INSECTA | DIPTERA | PELECORHYNCHIDAE | GLUTOPS | | 8.61 | 0.935 | 30. | 28. | |
| INSECTA | DIPTERA | PSYCHODIDAE | MARUINA | | 8.61 | 0.935 | 36. | 34. | |
| INSECTA | DIPTERA | EMPIDIDAE | OREOGETON | | 60.26 | 1.780 | 95. | 169. | |
| CRUSTACEA | COPEPODA | | | | 103.30 | 2.014 | 108. | 218. | |
| CRUSTACEA | OSTRACODA | | | | 64.56 | 1.810 | 108. | 195. | |
| TURBELLARIA | TRICLADIDA | PLANARIIDAE | PLANARIA | | 40.89 | 1.612 | 108. | 174. | |
| OLIGOCHAETA | HYDRACARINA | | | | 365.84 | 2.563 | 108. | 277. | |
| ARACHNIDA | | | | | 324.95 | 2.512 | 98. | 246. | |
| NEMATODA | | | | | 23.67 | 1.374 | 108. | 148. | |
| | | | | | TOTALS | 7949.49 | 3.900 | | 1.20 |

TOTAL SAMPLE STATISTICS

STATION: 3.3

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 08 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|-------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 44 | 5684. | 4093. | 7235. | 2292.13 | 18.10 | 40.47 | 3.5448 | 0.3523 | 59. | 61. |

SPECIES ANALYSES

STATION: 3.3

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 08 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|-----------------|------------------|-----------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 75.32 | 1.877 | 21. | 39. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 316.34 | 2.500 | 30. | 75. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 5 | 15.06 | 1.178 | 48. | 57. |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODSSI | | 30.13 | 1.479 | 2. | 3. |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | | 6.46 | 0.810 | 24. | 19. |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | | 17.22 | 1.236 | 24. | 30. |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | | 51.65 | 1.713 | 48. | 82. |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | | 434.70 | 2.638 | 72. | 190. |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DELANTALA | | 25.82 | 1.412 | 24. | 34. |
| INSECTA | PLECOPTERA | | | | 19.37 | 1.287 | 48. | 62. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 191.53 | 2.282 | 24. | 55. | |
| INSECTA | PLECOPTERA | PERLODIDAE | KOGOTUS | | | 4.30 | 0.834 | 18. | 11. |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | | 432.55 | 2.836 | 16. | 42. |
| INSECTA | PLECOPTERA | PERLIDAE | HESPEROPERLA | PACIFICA | | 2.15 | 0.333 | 18. | 6. |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | | 8.61 | 0.935 | 6. | 6. |
| INSECTA | PLECOPTERA | LEUCTRIDAE | | | | 43.04 | 1.634 | 18. | 29. |
| INSECTA | PLECOPTERA | PERLIDAE | CLAASSENIA | SABULOSA | | 4.30 | 0.834 | 6. | 4. |
| INSECTA | PLECOPTERA | PERLIDAE | ISOGENOIDES | | | 8.46 | 0.810 | 24. | 19. |
| INSECTA | PLECOPTERA | PERLODIDAE | | | | 2.15 | 0.333 | 24. | 8. |
| INSECTA | TRICHOPTERA | | | | 12.91 | 1.111 | 72. | 80. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | | 34.43 | 1.537 | 108. | 188. |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | CHEUMATOPSYCHE | | | 4.30 | 0.834 | 108. | 68. |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | | | | 4.30 | 0.834 | 108. | 68. |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | | 81.78 | 1.913 | 18. | 34. |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | | 66.71 | 1.824 | 24. | 44. |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | HYDROPTILA | | | 2.15 | 0.333 | 108. | 36. |
| INSECTA | COLEOPTERA | ELMIDAE | | | | 486.98 | 2.689 | 104. | 278. |
| INSECTA | ODONATA | | | | | 8.61 | 0.935 | 90. | 84. |
| INSECTA | DIPTERA | | | | | 4.30 | 0.834 | 108. | 68. |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | | 19.37 | 1.287 | 24. | 31. |
| INSECTA | DIPTERA | TIPULIDAE | DICRANOTA | | | 27.98 | 1.447 | 24. | 35. |
| INSECTA | DIPTERA | TIPULIDAE | HEXTATOMA | | | 8.61 | 0.935 | 36. | 34. |
| INSECTA | DIPTERA | SIMULIIDAE | | | | 23.87 | 1.374 | 108. | 148. |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | | 1039.42 | 3.017 | 108. | 328. |
| INSECTA | DIPTERA | EMPIDIDAE | | | | 12.91 | 1.111 | 95. | 108. |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | | 58.10 | 1.764 | 108. | 191. |
| INSECTA | DIPTERA | DIXIDAE | | | | 2.15 | 0.333 | 108. | 36. |
| INSECTA | DIPTERA | TIPULIDAE | | | | 40.89 | 1.612 | 72. | 118. |
| INSECTA | DIPTERA | PSYCHODIDAE | MARUINA | | | 6.46 | 0.810 | 36. | 29. |
| CRUSTACEA | COPEPODA | | | | | 8.46 | 0.810 | 108. | 87. |
| OLIGOCHAETA | HYDRACARINA | | | | | 1624.76 | 3.211 | 108. | 347. |
| ARACHNIDA | | | | | | 236.72 | 2.374 | 98. | 233. |
| NEMATODA | | | | | | 178.62 | 2.252 | 108. | 243. |
| CRUSTACEA | DECAPODA | | | | | 4.30 | 0.834 | 108. | 68. |
| (crayfish) | | | | | | | | | |
| | | | | | TOTALS | 5664.06 | 3.753 | | 1.20 |

TOTAL SAMPLE STATISTICS

STATION: 8.4

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 08 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 37 | 14061. | 10795. | 17327. | 4763.89 | 15.15 | 33.88 | 3.9924 | 0.2337 | 55. | 57. |

SPECIES ANALYSES

STATION: 8.4

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 08 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|-------------|----------------|-----------------|-----------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 671.42 | 2.827 | 21. | 59. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMLA | | 550.91 | 2.741 | 30. | 82. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | RHITHROGENA | | 34.43 | 1.537 | 21. | 32. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 103.30 | 2.014 | 48. | 97. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 68.86 | 1.838 | 2. | 4. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 503.57 | 2.702 | 24. | 65. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 1050.18 | 3.021 | 24. | 73. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 335.71 | 2.526 | 48. | 121. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 439.01 | 2.642 | 72. | 190. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DELANTALA | 51.65 | 1.713 | 24. | 41. | |
| INSECTA | PLECOPTERA | | | | 8.81 | 0.935 | 48. | 45. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 518.48 | 2.713 | 24. | 65. | |
| INSECTA | PLECOPTERA | PTERONARCYIDAE | PTERONARCYS | CALIFORNICA | 17.22 | 1.236 | 18. | 22. | |
| INSECTA | PLECOPTERA | CAPNIIDAE | | | 120.51 | 2.081 | 32. | 67. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 34.43 | 1.537 | 16. | 25. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 68.86 | 1.838 | 6. | 11. | |
| INSECTA | PLECOPTERA | LEUCTRIDAE | | | 146.34 | 2.165 | 18. | 39. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | VISOKA | CATARACTAE | 137.73 | 2.139 | 108. | 231. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 111.90 | 2.049 | 24. | 49. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 172.18 | 2.236 | 108. | 241. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | | | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 8.81 | 0.935 | 24. | 22. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 103.30 | 2.014 | 18. | 36. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 103.30 | 2.014 | 24. | 48. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 1127.85 | 3.052 | 104. | 317. | |
| INSECTA | DIPTERA | | | | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 301.28 | 2.479 | 24. | 59. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXATOMA | | 17.22 | 1.236 | 36. | 44. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 25.82 | 1.412 | 108. | 152. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 1669.95 | 3.223 | 108. | 348. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 464.83 | 2.867 | 95. | 253. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 146.34 | 2.165 | 108. | 234. | |
| INSECTA | DIPTERA | PELECORHYNCHIDAE | GLUTOPS | ROSSI | 34.43 | 1.537 | 30. | 46. | |
| CRUSTACEA | COPEPODA | | | | 43.04 | 1.834 | 108. | 178. | |
| CRUSTACEA | OSTRACODA | | | | 154.94 | 2.190 | 108. | 237. | |
| OLIGOCHAETA | | | | | 2685.70 | 3.429 | 108. | 370. | |
| ARACHNIDA | HYDRACARINA | | | | 1997.06 | 3.300 | 98. | 323. | |
| | | | | TOTALS | 14061.17 | 4.148 | | 1.10 | |

TOTAL SAMPLE STATISTICS

STATION: 9.6

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 08 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 46 | 16078. | 13291. | 18864. | 4064.79 | 11.31 | 25.28 | 3.6110 | 0.3468 | 53. | 58. |

SPECIES ANALYSES

STATION: 9.8

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 08 08 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|--------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 266.85 | 2.426 | 21. | 51. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 288.37 | 2.460 | 30. | 74. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | RHITHROGENA | | 15.06 | 1.178 | 21. | 25. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | SOQUELE | 430.40 | 2.634 | 48. | 126. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | COLORADENSIS | 19.37 | 1.287 | 18. | 23. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 60.26 | 1.780 | 48. | 85. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODSSI | 79.62 | 1.901 | 2. | 4. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 671.42 | 2.827 | 24. | 68. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 695.10 | 2.842 | 24. | 68. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 17.22 | 1.236 | 48. | 59. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 1009.29 | 3.004 | 72. | 218. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DELANTALA | 15.06 | 1.178 | 24. | 28. | |
| INSECTA | PLECOPTERA | | | | 8.61 | 0.935 | 48. | 45. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | MEGARCYS | | 619.78 | 2.792 | 24. | 67. | |
| INSECTA | PLECOPTERA | PERLODIDAE | PTERONARCYDS | | 25.82 | 1.412 | 24. | 34. | |
| INSECTA | PLECOPTERA | PTERONARCYDIAE | ZAPADA | CALIFORNICA | 2.15 | 0.333 | 18. | 6. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | HESPEROPERLA | | 182.92 | 2.262 | 18. | 38. | |
| INSECTA | PLECOPTERA | PERLIDAE | AMPHINEMURA | PACIFICA | 10.78 | 1.032 | 18. | 19. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | YORAPERLA | | 6.48 | 0.810 | 6. | 5. | |
| INSECTA | PLECOPTERA | PELTOPERLIDAE | VISOKA | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | PLECOPTERA | LEUCTRIDAE | | | 191.53 | 2.282 | 18. | 41. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | | | 122.86 | 2.089 | 108. | 228. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 25.82 | 1.412 | 24. | 34. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 77.47 | 1.889 | 108. | 204. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 232.42 | 2.368 | 24. | 57. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 180.77 | 2.257 | 18. | 41. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 6.46 | 0.810 | 24. | 19. | |
| INSECTA | TRICHOPTERA | LEPIDOSTOMATIDAE | | | 17.22 | 1.236 | 18. | 22. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | ATOPSYCHE | | 6.46 | 0.810 | 18. | 15. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 2952.54 | 3.470 | 104. | 381. | |
| INSECTA | DIPTERA | | | | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 391.66 | 2.593 | 24. | 62. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXATOMA | | 98.84 | 1.986 | 36. | 71. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 53.80 | 1.731 | 108. | 187. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 5334.81 | 3.727 | 108. | 403. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 77.47 | 1.889 | 95. | 179. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 94.69 | 1.978 | 108. | 213. | |
| INSECTA | DIPTERA | TIPULIDAE | | | 17.22 | 1.236 | 72. | 89. | |
| INSECTA | DIPTERA | PELECORHYNCHIDAE | GLUTOPS | ROSSI | 17.22 | 1.236 | 30. | 37. | |
| CRUSTACEA | COPEPODA | | | | 135.58 | 2.132 | 108. | 230. | |
| CRUSTACEA | OSTRACODA | | | | 294.82 | 2.470 | 108. | 267. | |
| GASTROPODA | | LYMNAEIDAE | LYMNAEA | | 51.65 | 1.713 | 108. | 185. | |
| TURBELLARIA | TRICLADIDA | PLANARIIDAE | PLANARIA | | 109.75 | 2.040 | 108. | 220. | |
| OLIGOCHAETA | | | | | 111.90 | 2.049 | 108. | 221. | |
| ARACHNIDA | HYDRACARINA | | | | 931.82 | 2.969 | 98. | 291. | |
| NEMATODA | | | | | 86.08 | 1.935 | 108. | 209. | |
| | | | | TOTALS | 16077.59 | 4.206 | | | 1.60 |

TOTAL SAMPLE STATISTICS

STATION: 3.3

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 09 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|------|----------------------|--------------|-----------------------------------|-------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * | NUMBERS DATA | | | | | | | | | | |
| 5 | 38 | 5681. | 3173. | 8190. | 3658.82 | 28.80 | 64.40 | 3.7998 | 0.2769 | 59. | 62. |

SPECIES ANALYSES

STATION: 3.3

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 09 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|-----------------|------------------|-----------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 217.35 | 2.337 | 21. | 49. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 124.82 | 2.096 | 30. | 63. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 51.65 | 1.713 | 48. | 82. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 15.06 | 1.178 | 2. | 2. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 12.91 | 1.111 | 24. | 27. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 122.66 | 2.089 | 48. | 100. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 542.30 | 2.734 | 72. | 197. | |
| INSECTA | PLECOPTERA | | | | 23.67 | 1.374 | 48. | 66. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | ISOPERLA | | 189.38 | 2.277 | 24. | 55. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ZAPADA | | 4.30 | 0.634 | 48. | 30. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | HESPEROPERLA | PACIFICA | 763.96 | 2.883 | 18. | 46. | |
| INSECTA | PLECOPTERA | PERLIDAE | MALENKA | | 25.82 | 1.412 | 18. | 25. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 58.10 | 1.764 | 36. | 64. | |
| INSECTA | PLECOPTERA | LEUCTRIDAE | | | 17.22 | 1.236 | 6. | 7. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 94.89 | 1.976 | 18. | 36. | |
| INSECTA | TRICHOPTERA | | | | 2.15 | 0.333 | 24. | 8. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 34.43 | 1.637 | 72. | 111. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | | | 32.28 | 1.509 | 108. | 163. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 71.02 | 1.851 | 18. | 33. | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | HYDROPTILA | | 83.93 | 1.924 | 24. | 46. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 8.61 | 0.935 | 108. | 101. | |
| INSECTA | ODONATA | GOMPHIDAE | | | 331.41 | 2.620 | 104. | 262. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 30.13 | 1.479 | 108. | 160. | |
| INSECTA | DIPTERA | TIPULIDAE | DICRANOTA | | 10.76 | 1.032 | 24. | 25. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 182.92 | 2.262 | 108. | 244. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 1659.19 | 3.220 | 108. | 348. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 21.52 | 1.333 | 96. | 127. | |
| INSECTA | DIPTERA | TIPULIDAE | | | 25.82 | 1.412 | 108. | 152. | |
| INSECTA | DIPTERA | PSYCHODIDAE | MARUINA | | 25.82 | 1.412 | 72. | 102. | |
| CRUSTACEA | COPEPODA | | | | 23.67 | 1.374 | 36. | 49. | |
| GASTROPODA | | | | | 122.66 | 2.089 | 108. | 226. | |
| OLIGOCHAETA | | | | | 6.46 | 0.810 | 96. | 78. | |
| ARACHNIDA | HYDRACARINA | | | | 284.06 | 2.453 | 108. | 265. | |
| NEMATODA | | | | | 292.87 | 2.466 | 98. | 242. | |
| | | | | | 133.42 | 2.125 | 108. | 230. | |
| | | | | | TOTALS | 5681.28 | 3.754 | | 0.66 |

TOTAL SAMPLE STATISTICS

STATION: 8.4

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 09 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|-------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 45 | 8068. | 7421. | 8710. | 940.43 | 5.21 | 11.66 | 3.9994 | 0.2720 | 58. | 57. |

SPECIES ANALYSES

STATION: 8.4

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 09 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|------------|-------------|--------------|--------------------|------------|----------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 154.94 | 2.190 | 21. | 46. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 361.54 | 2.558 | 30. | 77. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | RHITHROGENA | | 17.22 | 1.236 | 21. | 26. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 26.82 | 1.412 | 48. | 68. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 94.69 | 1.976 | 2. | 4. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 210.90 | 2.324 | 24. | 56. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 542.30 | 2.734 | 24. | 66. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 223.81 | 2.350 | 48. | 113. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 241.02 | 2.382 | 72. | 172. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DEALNTALA | 180.77 | 2.257 | 24. | 54. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | HECUBA | 4.30 | 0.634 | 48. | 30. | |
| INSECTA | PLECOPTERA | | | | 30.13 | 1.479 | 48. | 71. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | KOGOTUS | | 352.93 | 2.548 | 24. | 61. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOPERLA | | 4.30 | 0.634 | 18. | 11. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ZAPADA | | 17.22 | 1.236 | 48. | 59. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | HESPEROPERLA | PACIFICA | 43.04 | 1.634 | 18. | 26. | |
| INSECTA | PLECOPTERA | PERLIDAE | AMPHINEMURA | | 47.34 | 1.875 | 18. | 30. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | VISOKA | CATARACTAE | 21.52 | 1.333 | 6. | 8. | |
| INSECTA | PLECOPTERA | PERLIDAE | CLAASSENIA | | 185.07 | 2.287 | 18. | 41. | |
| INSECTA | TRICHOPTERA | | | | 25.82 | 1.412 | 24. | 34. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | | | 4.30 | 0.634 | 6. | 4. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 25.82 | 1.412 | 72. | 102. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 111.90 | 2.049 | 108. | 221. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 21.52 | 1.333 | 108. | 144. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 64.56 | 1.810 | 24. | 33. | |
| INSECTA | DIPTERA | | | | 86.08 | 1.935 | 24. | 46. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 1127.65 | 3.052 | 104. | 317. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXTATOMA | | 4.30 | 0.634 | 108. | 68. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 202.29 | 2.306 | 24. | 55. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 43.04 | 1.634 | 36. | 59. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 1876.54 | 3.273 | 108. | 354. | |
| INSECTA | DIPTERA | TABANIDAE | | | 30.13 | 1.479 | 95. | 141. | |
| INSECTA | DIPTERA | PELECORHYNCHIDAE | GLUTOPS | ROSSI | 81.78 | 1.913 | 108. | 207. | |
| INSECTA | DIPTERA | TIPULIDAE | | | 4.30 | 0.634 | 108. | 68. | |
| CRUSTACEA | COPEPODA | | | | 25.82 | 1.412 | 30. | 42. | |
| CRUSTACEA | OSTRACODA | | | | 4.30 | 0.634 | 72. | 48. | |
| TURBELLARIA | TRICLADIDA | PLANARIIDAE | PLANARIA | | 25.82 | 1.412 | 108. | 152. | |
| OLIGOCHAETA | | | | | 25.82 | 1.412 | 108. | 152. | |
| ARACHNIDA | HYDRACARINA | | | | 8.81 | 0.935 | 108. | 101. | |
| NEMATODA | | | | | 550.91 | 2.741 | 108. | 298. | |
| GASTROPODA | | LYMNAEIDAE | LYMNAEA | | 865.10 | 2.937 | 98. | 288. | |
| | | | | | 34.43 | 1.537 | 108. | 166. | |
| | | | | | 12.91 | 1.111 | 108. | 120. | |
| | | | | TOTALS | 8065.70 | 3.907 | | 1.10 | |

TOTAL SAMPLE STATISTICS

STATION: 9.6

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 09 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 42 | 6934. | 3857. | 10010. | 4487.18 | 28.94 | 64.72 | 3.9474 | 0.2687 | 55. | 58. |

SPECIES ANALYSES

STATION: 9.6

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 09 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|-----------------|------------------|--------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 316.34 | 2.500 | 21. | 53. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 98.84 | 1.986 | 30. | 60. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | RHITHROGENA | | 17.22 | 1.236 | 21. | 26. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | COLORADENSIS | 6.46 | 0.810 | 18. | 15. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 17.22 | 1.236 | 2. | 2. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 120.51 | 2.081 | 24. | 50. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | SOQUELE | 8.61 | 0.935 | 48. | 45. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 436.86 | 2.640 | 24. | 63. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 617.62 | 2.791 | 72. | 201. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DEALNTALA | 86.08 | 1.935 | 24. | 46. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TERESA | 120.51 | 2.081 | 24. | 50. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | SKWALA | PARALLELA | 277.61 | 2.443 | 24. | 59. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOPERLA | | 17.22 | 1.236 | 18. | 22. | |
| INSECTA | PLECOPTERA | PERLODIDAE | PTERONARCYS | CALIFORNICA | 111.90 | 2.049 | 48. | 98. | |
| INSECTA | PLECOPTERA | PTERONARCYDAE | ZAPADA | | 61.85 | 1.713 | 18. | 31. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | HESPEROPERLA | | 17.22 | 1.236 | 16. | 20. | |
| INSECTA | PLECOPTERA | PERLIDAE | MALENKA | PACIFICA | 8.61 | 0.935 | 18. | 17. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | YORAPERLA | | 17.22 | 1.236 | 36. | 44. | |
| INSECTA | PLECOPTERA | PELTOPERLIDAE | | | 15.08 | 1.178 | 24. | 28. | |
| INSECTA | PLECOPTERA | LEUCTRIDAE | | | 131.27 | 2.118 | 18. | 38. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | VISOKA | | 137.73 | 2.139 | 108. | 231. | |
| INSECTA | TRICHOPTERA | | | | 6.48 | 0.810 | 72. | 58. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 172.18 | 2.236 | 108. | 241. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | MOSELYANA | | 8.61 | 0.935 | 108. | 101. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 75.32 | 1.877 | 24. | 45. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 111.90 | 2.049 | 18. | 37. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 66.71 | 1.824 | 24. | 44. | |
| INSECTA | COLEOPTERA | ELMIDAE | SIALIS | | 600.41 | 2.778 | 104. | 289. | |
| INSECTA | MEGALOPTERA | SIALIDAE | | | 6.48 | 0.810 | 72. | 58. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | | 71.02 | 1.851 | 24. | 44. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXATOMA | MONTICOLA | 34.43 | 1.637 | 36. | 55. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 148.49 | 2.172 | 108. | 235. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 2179.98 | 3.338 | 108. | 361. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 86.08 | 1.935 | 95. | 184. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 51.65 | 1.713 | 108. | 185. | |
| INSECTA | DIPTERA | PSYCHODIDAE | MARUINA | | 26.82 | 1.412 | 36. | 51. | |
| CRUSTACEA | COPEPODA | | | | 30.13 | 1.479 | 108. | 160. | |
| CRUSTACEA | OSTRACODA | | | | 164.94 | 2.190 | 108. | 237. | |
| GASTROPODA | | LYMNAEIIDAE | LYMNAEA | | 8.61 | 0.935 | 108. | 101. | |
| TURBELLARIA | TRICLADIDA | PLANARIIDAE | PLANARIA | | 32.28 | 1.509 | 108. | 163. | |
| OLIGOCHAETA | | | | | 53.80 | 1.731 | 108. | 187. | |
| ARACHNIDA | HYDRACARINA | | | | 378.75 | 2.578 | 98. | 253. | |
| | | | | TOTALS | 6933.74 | 3.841 | | 0.95 | |

TOTAL SAMPLE STATISTICS

STATION: 3.3

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 15 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|-------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 42 | 6320. | 5157. | 7484. | 1698.51 | 12.00 | 26.84 | 3.7682 | 0.3020 | 55. | 58. |

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SPECIES ANALYSES

STATION: 3.3

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 15 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|-----------------|------------------|-----------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TERESA | 1 6.46 | 0.810 | 24. | 19. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 1 367.99 | 2.566 | 21. | 54. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 1 213.05 | 2.328 | 30. | 70. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 1 10.76 | 1.032 | 48. | 50. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 1 66.71 | 1.824 | 2. | 4. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 1 36.58 | 1.563 | 24. | 38. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 1 6.46 | 0.810 | 24. | 19. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 1 439.01 | 2.642 | 48. | 127. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 1 S, 0 606.86 | 2.783 | 72. | 200. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DEALNTALA | 1 10.76 | 1.032 | 24. | 25. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | HECUBA | 1 S 64.56 | 1.810 | 48. | 87. | |
| INSECTA | PLECOPTERA | | | | 1 53.80 | 1.731 | 48. | 83. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | ZAPADA | | 1 115.36 | 2.073 | 24. | 50. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | CALINEURIA | | 1 1000.68 | 3.000 | 16. | 48. | |
| INSECTA | PLECOPTERA | PERLIDAE | HESPEROPERLA | PACIFICA | 1 6.46 | 0.810 | 24. | 19. | |
| INSECTA | PLECOPTERA | PERLIDAE | AMPHINEMURA | | 1 8.61 | 0.935 | 18. | 17. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | | | 1 60.26 | 1.780 | 6. | 11. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 1 15.06 | 1.178 | 24. | 28. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOGENOIDES | | 1 8.61 | 0.935 | 24. | 22. | |
| INSECTA | TRICHOPTERA | | | | 1 10.76 | 1.032 | 72. | 74. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 1 S 40.89 | 1.612 | 108. | 174. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | ARCTOPSYCHE | | 1 6.46 | 0.810 | 18. | 15. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | PARAPSYCHE | | 1 6.46 | 0.810 | 6. | 5. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 1 53.80 | 1.731 | 18. | 31. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 1 124.82 | 2.096 | 24. | 50. | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | HYDROPTILA | | 1 S 8.61 | 0.935 | 108. | 101. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 1 S 273.30 | 2.437 | 104. | 253. | |
| INSECTA | ODONATA | | | | 1 S 6.46 | 0.810 | 90. | 73. | |
| INSECTA | DIPTERA | | | | 1 S 6.46 | 0.810 | 108. | 87. | |
| INSECTA | DIPTERA | TIPULIDAE | DICRANOTA | | 1 6.46 | 0.810 | 24. | 19. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXATOMA | | 1 S 8.61 | 0.935 | 36. | 34. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 1 S, 0 213.05 | 2.328 | 108. | 251. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 1 S, 0 1601.09 | 3.204 | 108. | 346. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 1 S 32.28 | 1.509 | 95. | 143. | |
| INSECTA | DIPTERA | DIXIDAE | | | 1 S 6.46 | 0.810 | 108. | 87. | |
| INSECTA | DIPTERA | TIPULIDAE | | | 1 S 17.22 | 1.236 | 72. | 89. | |
| INSECTA | DIPTERA | PSYCHODIDAE | MARUINA | | 1 S, ch 34.43 | 1.537 | 36. | 55. | |
| CRUSTACEA | COPEPODA | | | | 1 S, ch 34.43 | 1.537 | 108. | 166. | |
| PELCYPODA | | | | | 1 S 6.46 | 0.810 | 108. | 87. | |
| OLIGOCHAETA | | | | | 1 S, 0 51.65 | 1.713 | 108. | 185. | |
| ARACHNIDA | HYDRACARINA | | | | 1 S, 0 447.62 | 2.651 | 98. | 260. | |
| NEMATODA | | | | | 1 S 221.66 | 2.346 | 108. | 253. | |
| | | | | | TOTALS | 6320.42 | 3.801 | 0.56 | |

TOTAL SAMPLE STATISTICS

STATION: 8.4

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 15 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|-------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 51 | 7693. | 6403. | 8984. | 1882.39 | 10.94 | 24.47 | 3.8683 | 0.3187 | 54. | 54. |

SPECIES ANALYSES

STATION: 8.4

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 15 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|-----------------|------------------|------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TERESA | 4.30 | 0.634 | 24. | 15. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 189.38 | 2.277 | 21. | 48. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMLA | | 238.87 | 2.378 | 30. | 71. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | MARGARITA | 10.76 | 1.032 | 24. | 25. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 5 | 23.67 | 1.374 | 48. | 66. |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODSSI | | 19.37 | 1.287 | 2. | 3. |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | | 111.90 | 2.049 | 24. | 49. |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | SPINIFERA | | 8.61 | 0.935 | 24. | 22. |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 751.05 | 2.876 | 24. | 69. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 413.18 | 2.616 | 48. | 128. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 5,0 | 170.01 | 2.230 | 72. | 161. |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DEALANTALA | | 116.21 | 2.065 | 24. | 50. |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | HECUBA | 5 | 4.30 | 0.634 | 48. | 30. |
| INSECTA | PLECOPTERA | | | | 55.95 | 1.748 | 48. | 84. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 344.32 | 2.537 | 24. | 61. | |
| INSECTA | PLECOPTERA | PERLODIDAE | KOGOTUS | | 10.76 | 1.032 | 18. | 19. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOPERLA | | 17.22 | 1.236 | 48. | 59. | |
| INSECTA | PLECOPTERA | CAPNIIDAE | | | 68.86 | 1.838 | 32. | 59. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 131.27 | 2.118 | 16. | 34. | |
| INSECTA | PLECOPTERA | PERLIDAE | HESPEROPERLA | PACIFICA | 12.91 | 1.111 | 18. | 20. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 17.22 | 1.236 | 6. | 7. | |
| INSECTA | PLECOPTERA | LEUCTRIDAE | | | 109.75 | 2.040 | 18. | 37. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOGENOIDES | | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 51.65 | 1.713 | 24. | 41. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | VISOKA | | 10.76 | 1.032 | 108. | 111. | |
| INSECTA | TRICHOPTERA | | | | 8.61 | 0.935 | 72. | 67. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | 5 | 17.22 | 1.236 | 108. | 133. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | | | 6.46 | 0.810 | 108. | 87. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | ONOCOSMOECUS | | 4.30 | 0.634 | 18. | 11. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | OLIGOPHLEBODES | | 6.46 | 0.810 | 24. | 19. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 45.19 | 1.655 | 18. | 30. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 81.78 | 1.913 | 24. | 46. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | HIMALOPSYCHE | | 12.91 | 1.111 | 18. | 20. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | NEOPHYLAX | | 36.58 | 1.563 | 24. | 38. | |
| INSECTA | COLEOPTERA | ELMIDAE | | 5 | 1134.10 | 3.055 | 104. | 318. | |
| INSECTA | DIPTERA | | | | 51.65 | 1.713 | 108. | 185. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 200.14 | 2.301 | 24. | 55. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXATOMA | 5 | 25.82 | 1.412 | 36. | 51. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 10.76 | 1.032 | 108. | 111. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | 0 | 1816.29 | 3.259 | 108. | 352. | |
| INSECTA | DIPTERA | EMPIDIDAE | | 5,0 | 8.61 | 0.935 | 95. | 89. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | 5,0 | 49.50 | 1.895 | 108. | 183. | |
| INSECTA | DIPTERA | TIPULIDAE | | | 17.22 | 1.236 | 72. | 89. | |
| CRUSTACEA | COPEPODA | | | | 43.04 | 1.634 | 108. | 178. | |
| CRUSTACEA | OSTRACODA | | | | 38.74 | 1.588 | 108. | 172. | |
| GASTROPODA | | LYMNAEIDAE | LYMNAEA | 5 | 8.48 | 0.810 | 108. | 87. | |
| TURBELLARIA | TRICLADIDA | PLANARIIDAE | PLANARIA | 0,0 | 25.82 | 1.412 | 108. | 152. | |
| OLIGOCHAETA | | | | 0,5 | 23.67 | 1.374 | 108. | 148. | |
| ARACHNIDA | HYDRACARINA | | | 5,0 | 1088.91 | 3.037 | 98. | 298. | |
| NEMATODA | | | | 5 | 23.67 | 1.374 | 108. | 148. | |
| | | | | | TOTALS | 7693.40 | 3.886 | | 1.00 |

TOTAL SAMPLE STATISTICS

STATION: 9.6

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 15 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 49 | 16796. | 13125. | 18466. | 3895.27 | 11.03 | 24.66 | 4.0938 | 0.2718 | 54. | 55. |

SPECIES ANALYSES

STATION: 9.6

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 06 15 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|--------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 413.18 | 2.616 | 24. | 63. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 309.89 | 2.491 | 30. | 75. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | COLORADENSIS | 34.43 | 1.537 | 18. | 28. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 77.47 | 1.889 | 48. | 91. | |
| INSECTA | EPHEMEROPTERA | EPHEMERIDAE | EPHEMERELLA | DODDSI | 34.43 | 1.537 | 2. | 3. | |
| INSECTA | EPHEMEROPTERA | EPHEMERIDAE | EPHEMERELLA | TIBIALIS | 503.57 | 2.702 | 24. | 65. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 1433.23 | 3.156 | 24. | 76. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 258.24 | 2.412 | 48. | 116. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | S,O | 1747.42 | 3.242 | 72. | 233. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DELANTALA | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TERESA | 611.17 | 2.786 | 24. | 67. | |
| INSECTA | PLECOPTERA | | | | 61.66 | 1.713 | 48. | 82. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 588.13 | 2.754 | 24. | 68. | |
| INSECTA | PLECOPTERA | PERLODIDAE | MEGARCYS | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | PLECOPTERA | PERLODIDAE | CULTUS | | 17.22 | 1.236 | 12. | 15. | |
| INSECTA | PLECOPTERA | PTERONARCYIDAE | PTERONARCYS | CALIFORNICA | 17.22 | 1.236 | 18. | 22. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 344.32 | 2.537 | 18. | 41. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 189.38 | 2.277 | 6. | 14. | |
| INSECTA | PLECOPTERA | PELTOPERLIDAE | YORAPERLA | | 77.47 | 1.889 | 24. | 45. | |
| INSECTA | PLECOPTERA | LEUCTRIDAE | | | 215.20 | 2.333 | 18. | 42. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | VISOKA | | 180.77 | 2.257 | 108. | 244. | |
| INSECTA | PLECOPTERA | PERLODIDAE | | | 43.04 | 1.834 | 48. | 78. | |
| INSECTA | TRICHOPTERA | | | | 8.61 | 0.935 | 72. | 67. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | S | 17.22 | 1.236 | 108. | 133. |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | PARAPSYCHE | | | 8.61 | 0.935 | 6. | 6. |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | | | | 17.22 | 1.236 | 108. | 133. |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | OLIGOPHLEBODES | | | 17.22 | 1.236 | 24. | 30. |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | | 258.24 | 2.412 | 24. | 58. |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | | 292.67 | 2.468 | 18. | 44. |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | | 17.22 | 1.236 | 24. | 30. |
| INSECTA | TRICHOPTERA | LEPIDOSTOMATIDAE | | | | 8.61 | 0.935 | 18. | 17. |
| INSECTA | TRICHOPTERA | LEPIDOSTOMATIDAE | | | | 17.22 | 1.236 | 18. | 22. |
| INSECTA | COLEOPTERA | ELMIDAE | | | S | 1704.38 | 3.232 | 104. | 336. |
| INSECTA | COLEOPTERA | HYDROPHILIDAE | AMETOR | | | 17.22 | 1.236 | 72. | 89. |
| INSECTA | DIPTERA | | | | | 8.61 | 0.935 | 108. | 101. |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | — | 180.77 | 2.257 | 24. | 54. |
| INSECTA | DIPTERA | TIPULIDAE | HEXTATOMA | | S | 34.43 | 1.537 | 38. | 55. |
| INSECTA | DIPTERA | SIMULIIDAE | | | O | 77.47 | 1.889 | 108. | 204. |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | S,O | 3641.18 | 3.561 | 108. | 385. |
| INSECTA | DIPTERA | EMPIDIDAE | | | S | 60.26 | 1.780 | 95. | 169. |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | S,L | 232.42 | 2.366 | 108. | 256. |
| CRUSTACEA | COPEPODA | | | | | 671.42 | 2.827 | 108. | 305. |
| CRUSTACEA | OSTRACODA | | | | S | 241.02 | 2.382 | 108. | 257. |
| GASTROPODA | | | | | | 25.82 | 1.412 | 98. | 136. |
| TURBELLARIA | TRICLADIDA | PLANARIIDAE | PLANARIA | | O | 17.22 | 1.236 | 108. | 133. |
| OLIGOCHAETA | | | | | O | 86.08 | 1.935 | 108. | 209. |
| ARACHNIDA | HYDRACARINA | | | | D,S | 886.62 | 2.948 | 98. | 289. |
| NEMATODA | | | | | S | 68.86 | 1.838 | 108. | 199. |
| | | | | | TOTALS | 15795.68 | 4.199 | | 0.94 |

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TOTAL SAMPLE STATISTICS

STATION: 3.3

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 07 07 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 42 | 9103. | 7555. | 10651. | 2257.65 | 11.09 | 24.80 | 3.7600 | 0.3036 | 62. | 60. |

III

SPECIES ANALYSES

STATION: 3.3

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 07 07 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|-----------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | | | | 34.43 | 1.537 | 64. | 98. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 423.94 | 2.627 | 21. | 55. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 518.63 | 2.715 | 30. | 81. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | HEPTAGENIA | | 8.61 | 0.935 | 54. | 50. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODSSI | 120.51 | 2.081 | 2. | 4. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 83.93 | 1.924 | 24. | 46. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 62.41 | 1.795 | 48. | 86. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 600.41 | 2.778 | 72. | 200. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DELANTALA | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | HECUBA | 17.22 | 1.238 | 48. | 59. | |
| INSECTA | PLECOPTERA | | | | 51.65 | 1.713 | 48. | 82. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 241.02 | 2.382 | 24. | 57. | |
| INSECTA | PLECOPTERA | CAPNIIDAE | | | 8.61 | 0.935 | 32. | 30. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 2401.63 | 3.381 | 16. | 54. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 51.65 | 1.713 | 8. | 10. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 34.43 | 1.537 | 24. | 37. | |
| INSECTA | TRICHOPTERA | | | | 25.82 | 1.412 | 72. | 102. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 25.82 | 1.412 | 108. | 152. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 58.10 | 1.764 | 24. | 42. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 174.31 | 2.241 | 18. | 40. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 464.83 | 2.687 | 24. | 64. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 432.55 | 2.636 | 104. | 274. | |
| INSECTA | ODONATA | | | | 8.48 | 0.810 | 90. | 73. | |
| INSECTA | ODONATA | GOMPHIDAE | OPHIOGOMPHUS | | 8.61 | 0.935 | 108. | 101. | |
| INSECTA | DIPTERA | PELECORHYNCHIDAE | GLUTOPS | ROSSI | 8.48 | 0.810 | 30. | 24. | |
| INSECTA | DIPTERA | TIPULIDAE | DICRANOTA | | [34.43] | 1.537 | 24. | 37. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXTATOMA | | 8.61 | 0.935 | 36. | 34. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 94.69 | 1.976 | 108. | 213. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 1542.98 | 3.188 | 108. | 344. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 34.43 | 1.537 | 108. | 166. | |
| INSECTA | DIPTERA | PSYCHODIDAE | PERICOMA | | 34.43 | 1.537 | 36. | 56. | |
| INSECTA | DIPTERA | DIXIDAE | | | 25.82 | 1.412 | 108. | 152. | |
| INSECTA | DIPTERA | TIPULIDAE | | | 15.06 | 1.178 | 72. | 85. | |
| INSECTA | ODONATA | GOMPHIDAE | | | 17.22 | 1.238 | 108. | 133. | |
| INSECTA | DIPTERA | PSYCHODIDAE | MARUINA | | 34.43 | 1.537 | 36. | 55. | |
| CRUSTACEA | COPEPODA | | | | 144.18 | 2.159 | 108. | 233. | |
| CRUSTACEA | OSTRACODA | | | | 8.61 | 0.935 | 108. | 101. | |
| GASTROPODA | LYMNAEIDAE | LYMNAEA | | | 10.76 | 1.032 | 108. | 111. | |
| TURBELLARIA | TRICLADIDA | PLANARIIDAE | PLANARIA | | 8.61 | 0.935 | 108. | 101. | |
| OLIGOCHAETA | | | | | 699.40 | 2.845 | 108. | 307. | |
| ARACHNIDA | HYDRACARINA | | | | 432.55 | 2.636 | 98. | 258. | |
| NEMATODA | | | | | 86.08 | 1.935 | 108. | 209. | |
| | | | | TOTALS | 9102.96 | 3.959 | | 0.73 | |

TOTAL SAMPLE STATISTICS

STATION: 8.4

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 07 07 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * | NUMBERS DATA | | | | | | | | | | |
| 5 | 40 | 9885. | 7824. | 12106. | 3268.97 | 14.82 | 33.14 | 4.0277 | 0.2432 | 55. | 55. |

TOTAL SAMPLE STATISTICS

STATION: 3.3

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 08 07 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|------|----------------------|--------------|-----------------------------------|-------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * | NUMBERS DATA | | | | | | | | | | |
| 5 | 43 | 6953. | 5456. | 8450. | 2183.83 | 14.05 | 31.41 | 3.7290 | 0.3137 | 56. | 59. |

SPECIES ANALYSES

STATION: 8.4

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 07 07 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|-----------------|------------------|--------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DELANTALA | 1 94.69 | 1.976 | 24. | 47. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 1 111.90 | 2.049 | 21. | 43. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 1 249.63 | 2.397 | 30. | 72. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | COLORADENSIS | 1 17.22 | 1.236 | 18. | 22. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 1 25.82 | 1.412 | 2. | 3. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 1 163.55 | 2.214 | 24. | 53. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 1 895.23 | 2.952 | 24. | 71. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 1 172.16 | 2.236 | 48. | 107. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | S, O | 1 387.36 | 2.588 | 72. | 186. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | HECUBA | 1 34.43 | 1.537 | 48. | 74. | |
| INSECTA | PLECOPTERA | | | | 1 86.08 | 1.935 | 48. | 93. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | CULTUS | | 1 370.14 | 2.568 | 24. | 62. | |
| INSECTA | PLECOPTERA | PERLODIDAE | | | 1 43.04 | 1.634 | 12. | 20. | |
| INSECTA | PLECOPTERA | CAPNIIDAE | | | 1 68.86 | 1.838 | 32. | 59. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 1 714.46 | 2.854 | 16. | 46. | |
| INSECTA | PLECOPTERA | PERLIDAE | HESPEROPERLA | PACIFICA | 1 111.90 | 2.049 | 18. | 37. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 1 268.24 | 2.412 | 6. | 14. | |
| INSECTA | PLECOPTERA | LEUCTRIDAE | | | 1 103.30 | 2.014 | 18. | 36. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | VISOKA | | 1 17.22 | 1.236 | 108. | 133. | |
| INSECTA | PLECOPTERA | PERLIDAE | CLAASSENIA | SABULOSA | 1 8.61 | 0.935 | 6. | 7. | |
| INSECTA | TRICHOPTERA | | | | 1 51.85 | 1.713 | 108. | 185. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 1 26.82 | 1.412 | 24. | 34. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 1 94.69 | 1.976 | 18. | 36. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 1 232.42 | 2.366 | 24. | 57. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 1 740.29 | 2.869 | 104. | 298. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 1 17.22 | 1.236 | 108. | 133. | |
| INSECTA | DIPTERA | | | | 1 25.82 | 1.412 | 24. | 34. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 1 34.43 | 1.537 | 24. | 37. | |
| INSECTA | DIPTERA | TIPULIDAE | DICRANOTA | | 1 103.30 | 2.014 | 36. | 73. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXATOMA | | 1 103.30 | 2.014 | 108. | 218. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 1 2143.39 | 3.331 | 108. | 360. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 1 25.82 | 1.412 | 95. | 134. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 1 34.43 | 1.537 | 108. | 166. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 1 43.04 | 1.634 | 108. | 176. | |
| INSECTA | DIPTERA | DIXIDAE | | | 1 8.61 | 0.935 | 108. | 101. | |
| CRUSTACEA | COPEPODA | | | | 1 77.47 | 1.889 | 108. | 204. | |
| CRUSTACEA | OSTRACODA | | | | 1 1446.14 | 3.160 | 108. | 341. | |
| OLIGOCHAETA | | | | | 1 845.60 | 2.810 | 98. | 275. | |
| ARACHNIDA | HYDRACARINA | | | | 1 60.26 | 1.780 | 108. | 192. | |
| NEMATODA | | | | | | | | | 0.86 |
| | | | | TOTALS | 9884.77 | 3.994 | | | |

TOTAL SAMPLE STATISTICS

STATION: 9.6

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 07 07 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 45 | 12677. | 9054. | 16300. | 5284.62 | 18.64 | 41.69 | 3.9478 | 0.2818 | 52. | 54. |

SPECIES ANALYSES

STATION: 9.6

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 07 07 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|--------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 71.02 | 1.851 | 21. | 39. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 893.08 | 2.951 | 30. | 89. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | RHITHROGENA | | 23.67 | 1.374 | 21. | 29. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | COLORADENSIS | 17.22 | 1.236 | 18. | 22. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 25.82 | 1.412 | 48. | 68. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODSSI | 49.50 | 1.695 | 2. | 3. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 191.53 | 2.282 | 24. | 55. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 1426.78 | 3.154 | 24. | 78. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 88.08 | 1.935 | 48. | 93. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 1181.45 | 3.072 | 72. | 221. | |
| INSECTA | PLECOPTERA | | | | 34.43 | 1.637 | 48. | 74. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 680.03 | 2.833 | 24. | 68. | |
| INSECTA | PLECOPTERA | PERLODIDAE | MEGARCYS | | 34.43 | 1.637 | 24. | 37. | |
| INSECTA | PLECOPTERA | PERLODIDAE | CULTUS | | 17.22 | 1.236 | 12. | 15. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 974.86 | 2.989 | 16. | 48. | |
| INSECTA | PLECOPTERA | PERLIDAE | CALINEURIA | | 34.43 | 1.637 | 24. | 37. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 172.16 | 2.236 | 6. | 13. | |
| INSECTA | PLECOPTERA | PELTOPERLIDAE | YORAPERLA | | 60.28 | 1.780 | 24. | 43. | |
| INSECTA | PLECOPTERA | LEUCTRIDAE | | | 225.98 | 2.354 | 18. | 42. | |
| INSECTA | PLECOPTERA | PERLODIDAE | | | 137.73 | 2.139 | 48. | 103. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 34.43 | 1.637 | 24. | 37. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | VISOKA | | 172.16 | 2.236 | 108. | 241. | |
| INSECTA | TRICHOPTERA | | | | 26.82 | 1.412 | 72. | 102. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 25.82 | 1.412 | 108. | 152. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | ARCTOPSYCHE | | 17.22 | 1.236 | 18. | 22. | |
| INSECTA | TRICHOPTERA | LIMNEPHILIDAE | NEOPHYLAX | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 152.79 | 2.184 | 24. | 52. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 142.03 | 2.152 | 18. | 39. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 34.43 | 1.637 | 24. | 37. | |
| INSECTA | TRICHOPTERA | LEPIDOSTOMATIDAE | | | 6.46 | 0.810 | 18. | 15. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 1123.34 | 3.051 | 104. | 317. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 51.65 | 1.713 | 24. | 41. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXATOMA | | 17.22 | 1.236 | 36. | 44. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 8.61 | 0.935 | 108. | 101. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 2877.22 | 3.459 | 108. | 374. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 23.67 | 1.374 | 96. | 131. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 34.43 | 1.637 | 108. | 166. | |
| INSECTA | DIPTERA | DIXIDAE | | | 10.76 | 1.032 | 108. | 111. | |
| INSECTA | DIPTERA | PELECORHYNCHIDAE | GLUTOPS | ROSSI | 25.82 | 1.412 | 30. | 42. | |
| CRUSTACEA | COPEPODA | | | | 103.30 | 2.014 | 108. | 218. | |
| CRUSTACEA | OSTRACODA | | | | 120.51 | 2.081 | 108. | 225. | |
| TURBELLARIA | TRICLADIDA | PLANARIIDAE | PLANARIA | | 51.65 | 1.713 | 108. | 185. | |
| OLIGOCHAETA | | | | | 540.15 | 2.733 | 108. | 295. | |
| ARACHNIDA | HYDRACARINA | | | | 705.88 | 2.849 | 98. | 279. | |
| NEMATODA | | | | | 17.22 | 1.236 | 108. | 133. | |
| | | | | | TOTALS | 12677.43 | 4.103 | | 1.10 |

TOTAL SAMPLE STATISTICS

STATION: 3.3

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 09 19 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 50 | 9585. | 8058. | 11112. | 2227.90 | 10.39 | 23.24 | 4.4001 | 0.2209 | 54. | 54. |

SPECIES ANALYSES

STATION: 3.3

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 09 19 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | | | | 17.22 | 1.236 | 64. | 79. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 456.22 | 2.659 | 21. | 56. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 725.22 | 2.860 | 30. | 86. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | RHITHROGENA | | 413.18 | 2.616 | 21. | 55. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 17.22 | 1.236 | 48. | 59. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 62.41 | 1.795 | 2. | 4. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 897.38 | 2.953 | 24. | 71. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 137.73 | 2.139 | 48. | 103. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 408.88 | 2.612 | 72. | 188. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DELANTALA | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | PLECOPTERA | | | | 43.04 | 1.634 | 48. | 78. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 34.43 | 1.537 | 24. | 37. | |
| INSECTA | PLECOPTERA | PERLODIDAE | SKWALA | PARALLELA | 43.04 | 1.634 | 18. | 29. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOPERLA | | 60.26 | 1.780 | 48. | 85. | |
| INSECTA | PLECOPTERA | PERLODIDAE | CULTUS | | 25.82 | 1.412 | 12. | 17. | |
| INSECTA | PLECOPTERA | TAENIOPTERYGIDAE | TAENIONEMA | | 103.30 | 2.014 | 48. | 97. | |
| INSECTA | PLECOPTERA | PTERONARCYIDAE | PTERONARCELLA | BADIA | 88.86 | 1.838 | 24. | 44. | |
| INSECTA | PLECOPTERA | CAPNIIDAE | | | 195.83 | 2.292 | 32. | 73. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 182.92 | 2.262 | 16. | 36. | |
| INSECTA | PLECOPTERA | PERLIDAE | HESPEROPERLA | PACIFICA | 23.67 | 1.374 | 18. | 25. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | MALENKA | | 103.30 | 2.014 | 36. | 73. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 593.95 | 2.774 | 6. | 17. | |
| INSECTA | PLECOPTERA | LEUCTRIDAE | | | 8.61 | 0.935 | 18. | 17. | |
| INSECTA | PLECOPTERA | PERLODIDAE | PERLINODES | | 8.61 | 0.935 | 48. | 45. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 43.04 | 1.634 | 24. | 39. | |
| INSECTA | TRICHOPTERA | | | | 8.61 | 0.935 | 72. | 67. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 180.77 | 2.257 | 108. | 244. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 464.83 | 2.667 | 18. | 48. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 86.08 | 1.935 | 24. | 46. | |
| INSECTA | TRICHOPTERA | LEPIDOSTOMATIDAE | LEPIDOSTOMA | | 15.06 | 1.178 | 18. | 21. | |
| INSECTA | COLEOPTERA | ELMIDAE | | | 819.78 | 2.792 | 104. | 290. | |
| INSECTA | ODONATA | GOMPHIDAE | GOMPHUS | | 8.61 | 0.935 | 108. | 101. | |
| INSECTA | ODONATA | GOMPHIDAE | OPHIOGOMPHUS | | 6.46 | 0.810 | 108. | 87. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 8.61 | 0.935 | 24. | 22. | |
| INSECTA | DIPTERA | TIPULIDAE | DICRANOTA | | 109.75 | 2.040 | 24. | 49. | |
| INSECTA | DIPTERA | TIPULIDAE | HOLORUSIA | | 17.22 | 1.236 | 72. | 89. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXATOMA | | 23.67 | 1.374 | 36. | 49. | |
| INSECTA | DIPTERA | SIMULIIDAE | | | 157.10 | 2.198 | 108. | 237. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 1695.78 | 3.229 | 108. | 349. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 8.61 | 0.935 | 95. | 89. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 40.89 | 1.612 | 108. | 174. | |
| INSECTA | DIPTERA | PSYCHODIDAE | PERICOMA | | 154.94 | 2.190 | 36. | 79. | |
| INSECTA | DIPTERA | PELECORHYNCHIDAE | GLUTOPS | ROSSI | 8.61 | 0.935 | 30. | 28. | |
| CRUSTACEA | COPEPODA | | | | 86.08 | 1.935 | 108. | 209. | |
| CRUSTACEA | OSTRACODA | | | | 25.82 | 1.412 | 108. | 152. | |
| GASTROPODA | | LYMNAEIDAE | LYMNAEA | | 6.46 | 0.810 | 108. | 87. | |
| OLIGOCHAETA | | | | | 643.45 | 2.809 | 108. | 303. | |
| ARACHNIDA | HYDRACARINA | | | | 406.73 | 2.609 | 98. | 258. | |
| NEMATODA | | | | | 103.30 | 2.014 | 108. | 218. | |
| CRUSTACEA | DECAPODA | | | (Crayfish) | 15.06 | 1.178 | 108. | 127. | |
| | | | | | TOTALS | 9585.01 | 3.982 | | 1.60 |

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TOTAL SAMPLE STATISTICS

STATION: 8.4

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 09 09 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|----------------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * NUMBERS DATA | | | | | | | | | | | |
| 5 | 44 | 10603. | 7548. | 13658. | 4456.41 | 18.80 | 42.03 | 4.0233 | 0.2640 | 54. | 53. |

SPECIES ANALYSES

STATION: 8.4

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 09 09 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|-----------|-------------|--------------|--------------------|------------|----------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 51.65 | 1.713 | 21. | 36. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 1497.79 | 3.175 | 30. | 95. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 5 | 60.26 | 1.780 | 48. | 85. |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODSSI | 1 | 17.22 | 1.238 | 2. | 2. |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | TIBIALIS | 1 | 8.61 | 0.935 | 24. | 22. |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 430.40 | 2.634 | 24. | 63. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 8.61 | 0.935 | 48. | 45. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 5,0 | 258.24 | 2.412 | 72. | 174. |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | MARGARITA | 5,1 | 68.86 | 1.838 | 24. | 44. |
| INSECTA | PLECOPTERA | | | | 17.22 | 1.236 | 48. | 59. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 103.30 | 2.014 | 24. | 48. | |
| INSECTA | PLECOPTERA | PERLODIDAE | SKWALA | PARALLELA | 1 | 94.69 | 1.976 | 18. | 36. |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOPERLA | | 0 | 34.43 | 1.537 | 48. | 74. |
| INSECTA | PLECOPTERA | PERLODIDAE | CULTUS | | 1 | 197.98 | 2.297 | 12. | 28. |
| INSECTA | PLECOPTERA | PTERONARCYIDAE | PTERONARCELLA | BADIA | 1 | 8.61 | 0.935 | 24. | 22. |
| INSECTA | PLECOPTERA | CAPNIIDAE | ZAPADA | | 352.93 | 2.548 | 32. | 82. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | | | 60.26 | 1.780 | 16. | 28. | |
| INSECTA | PLECOPTERA | PERLIDAE | HESPEROPERLA | PACIFICA | 1 | 17.22 | 1.236 | 18. | 22. |
| INSECTA | PLECOPTERA | NEMOURIDAE | MALENKA | | 5 | 34.43 | 1.537 | 36. | 55. |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 1 | 327.10 | 2.515 | 6. | 15. |
| INSECTA | PLECOPTERA | LEUCTRIDAE | | | 103.30 | 2.014 | 18. | 36. | |
| INSECTA | PLECOPTERA | PERLODIDAE | PERLINODES | | 1 | 103.30 | 2.014 | 48. | 97. |
| INSECTA | PLECOPTERA | NEMOURIDAE | VISOKA | | 5 | 111.90 | 2.049 | 108. | 221. |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 1 | 60.26 | 1.780 | 108. | 192. |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | ARCTOPSYCHE | | 5 | 68.86 | 1.838 | 18. | 33. |
| INSECTA | TRICHOPTERA | PSYCHOMYIDAE | PSYCHOMYIA | | 1 | 17.22 | 1.238 | 108. | 133. |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 1 | 172.16 | 2.236 | 18. | 40. |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 5 | 585.34 | 2.767 | 24. | 66. |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | ALISOTRICHIA | | 5 | 34.43 | 1.537 | 108. | 166. |
| INSECTA | COLEOPTERA | ELMIDAE | | | 5 | 1799.07 | 3.255 | 104. | 339. |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 1 | 766.11 | 2.884 | 24. | 69. |
| INSECTA | DIPTERA | TIPULIDAE | HEXATOMA | | 5 | 25.82 | 1.412 | 36. | 51. |
| INSECTA | DIPTERA | SIMULIIDAE | | | 0 | 43.04 | 1.634 | 108. | 178. |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 5,0 | 1764.64 | 3.247 | 108. | 351. |
| INSECTA | DIPTERA | EMPIDIDAE | | | 5 | 8.61 | 0.935 | 95. | 89. |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 5, ch | 17.22 | 1.238 | 108. | 133. |
| INSECTA | DIPTERA | PSYCHODIDAE | PERICOMA | | 5, ch | 241.02 | 2.382 | 36. | 88. |
| INSECTA | DIPTERA | PELECORHYNCHIDAE | GLUTOPS | ROSSI | 5, | 25.82 | 1.412 | 30. | 42. |
| INSECTA | DIPTERA | TIPULIDAE | | | 5 | 8.61 | 0.935 | 72. | 67. |
| CRUSTACEA | OSTRACODA | | | | 5 | 25.82 | 1.412 | 108. | 162. |
| PELECYPODA | | | | | 5 | 8.61 | 0.935 | 108. | 101. |
| OLIGOCHAETA | | | | | 0, 5 | 335.71 | 2.526 | 108. | 273. |
| ARACHNIDA | | | | | 5 | 617.62 | 2.791 | 98. | 273. |
| NEMATODA | | HYDRACARINA | | | 5 | 8.61 | 0.935 | 108. | 101. |

TOTALS

10602.91

2.91 4.028

8.50

TOTAL SAMPLE STATISTICS

STATION: 9.6

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 09 09 88

| REPL | TOTAL NO. SPECIES | MEAN /SQM | CONFIDENCE LIMITS (80 PERCENT) | | STANDARD DEVIATION | PERCENT SE OF MEAN | COEFF. OF VARIATION | DBAR | R | CTQA | CTQD |
|------|----------------------|--------------|-----------------------------------|--------|-----------------------|-----------------------|------------------------|--------|--------|------|------|
| | | | LL | UL | | | | | | | |
| * | NUMBERS DATA | | | | | | | | | | |
| 5 | 55 | 12968. | 9147. | 16789. | 5573.67 | 19.22 | 42.98 | 4.0520 | 0.3002 | 51. | 53. |

SPECIES ANALYSES

STATION: 9.6

TYGH CREEK, MT HOOD NATIONAL FOREST

DATE: 09 09 88

| CLASS | ORDER | FAMILY | GENUS | SPECIES | MEAN NO/SQM | LOG10 NO/SQM | TOLERANCE QUOTIENT | LOG10 X TQ | MEAN WT GM/SQM |
|-------------|---------------|------------------|------------------|--------------|----------------|-----------------|-----------------------|---------------|-------------------|
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | EPEORUS | | 25.82 | 1.412 | 21. | 30. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | CINYGMULA | | 602.56 | 2.780 | 30. | 83. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | RHITHROGENA | | 43.04 | 1.634 | 21. | 34. | |
| INSECTA | EPHEMEROPTERA | HEPTAGENIIDAE | HEPTAGENIA | | 12.91 | 1.111 | 54. | 60. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | COLORADENSIS | 17.22 | 1.236 | 18. | 22. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | INERMIS | 21.52 | 1.333 | 48. | 64. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | DODDSI | 34.43 | 1.537 | 2. | 3. | |
| INSECTA | EPHEMEROPTERA | LEPTOPHLEBIIDAE | PARALEPTOPHLEBIA | | 727.38 | 2.882 | 24. | 69. | |
| INSECTA | EPHEMEROPTERA | SIPHONURIDAE | AMELETUS | | 25.82 | 1.412 | 48. | 68. | |
| INSECTA | EPHEMEROPTERA | BAETIDAE | BAETIS | | 118.21 | 2.065 | 72. | 149. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | VISOKA | | 124.82 | 2.096 | 108. | 226. | |
| INSECTA | EPHEMEROPTERA | EPHEMERELLIDAE | EPHEMERELLA | MARGARITA | 21.52 | 1.333 | 24. | 32. | |
| INSECTA | PLECOPTERA | | | | 8.81 | 0.935 | 48. | 45. | |
| INSECTA | PLECOPTERA | CHLOROPERLIDAE | | | 331.41 | 2.520 | 24. | 60. | |
| INSECTA | PLECOPTERA | PERLODIDAE | SKWALA | PARALLELA | 8.81 | 0.935 | 18. | 17. | |
| INSECTA | PLECOPTERA | PERLODIDAE | KOGOTUS | | 43.04 | 1.634 | 18. | 29. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOPERLA | | 25.82 | 1.412 | 48. | 68. | |
| INSECTA | PLECOPTERA | PERLODIDAE | CULTUS | | 94.69 | 1.978 | 12. | 24. | |
| INSECTA | PLECOPTERA | TAENIOPTERYGIDAE | TAENIONEMA | | 8.81 | 0.935 | 48. | 45. | |
| INSECTA | PLECOPTERA | PTERONARCYIDAE | PTERONARCYS | CALIFORNICA | 8.81 | 0.935 | 18. | 17. | |
| INSECTA | PLECOPTERA | CAPNIIDAE | | | 318.50 | 2.503 | 32. | 80. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | ZAPADA | | 94.69 | 1.978 | 16. | 32. | |
| INSECTA | PLECOPTERA | PERLIDAE | HESPEROPERLA | PACIFICA | 17.22 | 1.236 | 18. | 22. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | MALENKA | | 68.86 | 1.838 | 36. | 66. | |
| INSECTA | PLECOPTERA | NEMOURIDAE | AMPHINEMURA | | 103.30 | 2.014 | 6. | 12. | |
| INSECTA | PLECOPTERA | PELTOPERLIDAE | YORAPERLA | | 68.86 | 1.838 | 24. | 44. | |
| INSECTA | PLECOPTERA | LEUCTRIDAE | | | 186.08 | 1.935 | 18. | 35. | |
| INSECTA | PLECOPTERA | PERLIDAE | | | 77.47 | 1.889 | 24. | 45. | |
| INSECTA | PLECOPTERA | PERLODIDAE | ISOGENOIDES | | 8.81 | 0.935 | 24. | 22. | |
| INSECTA | TRICHOPTERA | | | | 8.81 | 0.935 | 72. | 87. | |
| INSECTA | TRICHOPTERA | HYDROPSYCHIDAE | HYDROPSYCHE | | 223.81 | 2.350 | 108. | 254. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | BRACHYCENTRUS | | 17.22 | 1.236 | 24. | 30. | |
| INSECTA | TRICHOPTERA | BRACHYCENTRIDAE | MICRASEMA | | 98.99 | 1.996 | 24. | 48. | |
| INSECTA | TRICHOPTERA | RHYACOPHILIDAE | RHYACOPHILA | | 335.71 | 2.526 | 18. | 45. | |
| INSECTA | TRICHOPTERA | GLOSSOSOMATIDAE | GLOSSOSOMA | | 1007.14 | 3.003 | 24. | 72. | |
| INSECTA | TRICHOPTERA | LEPIDOSTOMATIDAE | | | 17.22 | 1.236 | 18. | 22. | |
| INSECTA | TRICHOPTERA | HYDROPTILIDAE | ALISOTRICHIA | | 2612.53 | 3.417 | 108. | 369. | |
| INSECTA | COLEOPTERA | ELIMIDAE | | | 1394.50 | 3.144 | 104. | 327. | |
| INSECTA | MEGALOPTERA | SIALIDAE | SIALIS | | 8.81 | 0.935 | 72. | 67. | |
| INSECTA | DIPTERA | | | | 4.30 | 0.634 | 108. | 68. | |
| INSECTA | DIPTERA | TIPULIDAE | ANTOCHA | MONTICOLA | 322.80 | 2.509 | 24. | 60. | |
| INSECTA | DIPTERA | TIPULIDAE | DICRANOTA | | 8.81 | 0.935 | 24. | 22. | |
| INSECTA | DIPTERA | TIPULIDAE | HEXTATOMA | | 38.74 | 1.588 | 36. | 57. | |
| INSECTA | DIPTERA | CHIRONOMIDAE | | | 2393.02 | 3.379 | 108. | 365. | |
| INSECTA | DIPTERA | EMPIDIDAE | | | 4.30 | 0.634 | 95. | 60. | |
| INSECTA | DIPTERA | CERATOPOGONIDAE | | | 68.86 | 1.838 | 108. | 199. | |
| INSECTA | DIPTERA | PSYCHODIDAE | PERICOMA | | 206.59 | 2.315 | 36. | 83. | |
| INSECTA | DIPTERA | DIXIDAE | | | 8.61 | 0.935 | 108. | 101. | |
| INSECTA | DIPTERA | PSYCHODIDAE | MARUINA | | 17.22 | 1.236 | 36. | 44. | |
| CRUSTACEA | COPEPODA | | | | 241.02 | 2.382 | 108. | 257. | |
| CRUSTACEA | OSTRACODA | | | | 120.51 | 2.081 | 108. | 225. | |
| TURBELLARIA | TRICLADIDA | PLANARIIDAE | PLANARIA | | 17.22 | 1.236 | 108. | 133. | |
| OLIGOCHAETA | | | | | 185.07 | 2.267 | 108. | 245. | |
| ARACHNIDA | HYDRACARINA | | | | 434.70 | 2.638 | 98. | 259. | |
| NEMATODA | | | | | 25.82 | 1.412 | 108. | 152. | |

TOTALS

12967.95 4.113

1.10